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MONTHLY REPORT

OF THE

CONDITION OF THE CROPS.

DEPARTMENT OF AGRICULTURE,

Washington, July 10, 1863.

The Commissioner of Agriculture submits to the consideration of the farming community the following monthly reports of the condition of the crops for the months of May and June, together with such matters of the weather as connect themselves with these crops. For the meteorological observations he is indebted to the Smithsonian Institution, under the direction of Prof. Henry; and the farmers of the country owe much to that Institution, and to the observers connected with it, who, in the different sections of the country, with patient watchfulness, note the flying clouds, mark the changing weather, and gauge the falling rain, unsalaried and unpaid, save in the consciousness of doing a good work.

He is assured, from the workings of the system adopted to obtain information of the growing crops, of its general correctness and great utility. Whatever imperfections it may now have will be speedily overcome, as its practical operation will be more fully understood by his correspondents, and Congress grants to him facilities for the attainment of his object. He looks, too, with confident assurance to the ready co-operation which the secretaries of agricultural societies and clubs can give him, by carefully prepared answers to his circulars.

Hereafter a similar report will be issued on the tenth day of every month; and that this may be done with promptness, the Commissioner requests all correspondents and observers to transmit their answers and reports to him on the first day of every month, as more fully stated in the following report.

ISAAC NEWTON, *Commissioner.*

(FROM THE DEPARTMENT OF AGRICULTURE.)

MAY AND JUNE, 1863.

The Agricultural Department, in issuing its first monthly report of the condition of the crops, desires to make known its *purpose* in preparing these reports, and the *means* it has adopted to collect the information embraced in them.

1. No nation has ever developed such agricultural resources as the United States, whether the amount and the variety of its products, or their relations to manufactures and commerce, are considered. The amount of the capital it has invested in lands and farming implements is nearly seven billions of dollars, producing an annual value of two and a half billions of dollars. It employs and directly supports about seventeen millions of the population of the

United States. Its products are not only those cereals and animals from which our breadstuffs and meats are obtained, but embrace also those textile materials that sustain, not only our own manufacturing industry, but the great cotton manufactures of the world. Hence our manufacturing industry has been created by, and is dependent on, our agriculture. The capital invested in our manufactures exceeds two billions of dollars, yielding an annual product not much less in value. This diversified industry has created a commerce of not less proportionate magnitude, which, employed in distributing these provisions and materials and manufactures, uses as its means of travel and transportation railroads, canals, and river improvements, costing two and a half billions of dollars, and employs a tonnage in value about two hundred and twenty-five millions of dollars. Such are the gigantic operations of American industry, making its national inventory one of the most extraordinary records of progress the world has ever beheld.

Nor is this all. The wants of Europe have established a great and rapidly increasing dependence upon the United States for its agricultural products. This is seen in the magnitude of the exportation of these, even when civil war has closed so many ports, and paralyzed the agriculture of so large a portion of the country. The world leans on us.

To meet demands of this great magnitude is the mission of American agriculture. The merchant and the manufacturer, the operative in the factory and the mechanic in the shop, those at home and those abroad—all, as much as the farmer, cannot but feel deeply interested in the monthly report of the progress of an agriculture upon which these classes depend.

Statistical information is collected slowly, and generally not published until the immediate interest in them has passed away. Thus, for instance, the American Almanac, an annual statistical publication of the highest authority, does not generally bring its statistics nearer than two years of the time of its publication. Even the imports and exports of the United States are not made generally known by the Treasury Department until eighteen months after the close of the fiscal year. In the mean time the vast crops have been sown and harvested and sold, with no reliable information of their amount, save what certain interests obtain through agencies, in which the public are not regarded as having any concern, nor any right to the information they give.

This is unjust to the industrial pursuits of our country. Those who produce, and those who consume, have interests as well as the purchaser who stands between them. A knowledge of the market is essential for all, and this market is governed by supply and demand.

The relations between agriculture, manufactures, and commerce, demand that something should be done to obtain and publish, at brief intervals during the crop season, reliable information of the amount and condition of these crops. The connexion between the industrial pursuits creates mutual interests. There is no clearer principle of political economy than this, that as the farmer is enriched all other classes prosper. His pursuit, as stated, embraces two-thirds of our population—the great body of consumers of manufactured products—and of these he buys in proportion as his own occupation gives him the means. Hence, the more he consumes the greater is the demand for manufactures. The office of commerce being to interchange the products of agriculture and manufacture between their respective consumers, it, too, prospers in proportion as the farmer and operative thrive. Individuals, however, do not regard the common welfare, but are constantly impelled by self-interest to take from it to enrich themselves. Hence commercial speculations are common where general ignorance prevails of the true conditions of supply and demand. Every public interest is injuriously affected through this self-aggrandizement. The Wall street speculations in gold, which led Congress to enact the first law ever passed in this country to regulate *discounts*, are not the only instances where individual gain disregarded the public good.

Ignorance of the state of our crops invariably leads to speculation, in which oftentimes, the farmer does not obtain just prices, and by which the consumer is not benefited. The interests of labor, therefore, demand that the true condition of these crops should be made known. Such knowledge, whilst it tends to discourage speculation, gives to commerce a more uniform, and, consequently, a more healthy action. Its influence on manufactures is not less beneficial. The probable supply of textile material directs the extent of manufacturing industry, and the prices and consumption of its products.

2. Holding these opinions, the Commissioner of Agriculture believed it was his duty to adopt some plan to obtain each month, during the months from May to October inclusive, general information of the amount and condition of our leading agricultural products. He was aware of the difficulties that surrounded an attempt of this kind. The department had no means, except in a copy of its annual report, these monthly reports, and seeds, to pay for answers to interrogatories necessary to procure information. It had but one reliance—the voluntary aid of intelligent farmers—a class to whom the government, in its utmost need, ever appealed to, and not in vain, for aid and protection.

The plan that has been adopted is to issue a circular for each month, commencing with May, to end with October, and in it to make inquiries relative to those crops the condition of which is of most importance to be known. It was desirable to avoid perplexing interrogatories, and to select those only which could be answered briefly and definitely. In the subjoined tables it will be seen that the questions relate to but two matters, the amount sown in 1863 compared with that in 1862, and the appearance of the crop in May and June. The answers are given in figures, by adopting 10 as the representative of an average of the *amount* of acres sown; making each number below or above it represent *one-tenth* of a decrease or increase. So 10 represents also an average *appearance*. The figure 9 would be one-tenth below the average appearance, and 11 would be one-tenth above it. These answers are simple, not likely to be misunderstood, and enable the department to make, readily, averages of a county, and from these of a State, and from all the States a general average. With this explanation every person will easily understand the tables.

The difficulties of collecting these statistics were several. The correspondents were unknown; who were reliable, from the interest they would take in the proposed plan, could be ascertained by trial only; who would procure the information, necessary to approximate to correctness, was uncertain. As farmers communicate to each other, and to persons in towns, especially to dealers in produce, the state and amount of their crops, there soon obtains in every county a knowledge of their condition, whether more or less than an average has been planted, whether injured, and by what cause, and to what extent. With no great deal of trouble, this information can be collected and transmitted through the plan adopted. *From no other source can the condition of growing crops be ascertained.* It is obvious that as our correspondents better understand the general character of the information this department needs, their inquiries will be seasonably made, so that their replies can be given clearly, and at the desired time.

It is designed to issue the circulars about the tenth day of each month, and have them mailed for their return on the first day of the ensuing month. This will give time to take averages of the answers, to prepare the meteorological tables, and to make such statements in the report as may be desired, and have it printed and distributed to correspondents, with the next circular, by the tenth.

Unseen difficulties, inseparable from every undertaking where experience has not yet fixed the routine necessary to be pursued, has delayed this first report. The irregularities of the mails, delay in the printing of the circulars, time required by correspondents to make arrangements to procure the desired information—these were some of them. The number and character of the answers received,

especially under these disadvantages, give ample assurance that the plan adopted will be successful, and that this department will soon be in regular correspondence with many of the most intelligent farmers of the several States.

The replies from which the following tables were made are not as numerous in some of the States as was desirable. But the answers from the great grain-producing States of Ohio, Indiana, Illinois, Michigan, Wisconsin, and Iowa, were full and satisfactory. It is due, too, that the promptness of the new and distant States of Minnesota and Kansas should be kindly acknowledged, and their example commended to States much nearer to the capital.

Our correspondents will notice that the envelopes accompanying the circulars for July are prepaid. This course was rendered necessary by the construction given by the Postmaster General to the law of last session of Congress, regulating the franking privilege. That law declares that "all official communications addressed to the several executive departments by an officer responsible to that department, who shall mark it 'official,' with his signature thereto, shall be free of charge, but all others must be prepaid."

The act of May, 1862, creating the Department of Agriculture, enjoins on the Commissioner the duty "to acquire and preserve in his department all useful information concerning agriculture, which he can obtain by means of books and *correspondence*, by the *collection* of statistics, and valuable seeds and plants." And to enable him to discharge these duties, it declares that "said Commissioner may send and *receive* through the mail, *free of charge*, all communications, and other matter pertaining to the business of his department."

The other departments of government, where duties are enjoined upon them requiring action or information outside of Washington, have their officers, by whom and through whom these duties may be discharged, or this information be communicated. The Post Office Department has its deputies and mail agents. The Department of the Interior has its land offices, its Indian agents, &c., &c. The Navy and War Departments have their officers, when sailors and soldiers are to be recruited, or drafted, or clothed, or fed, or marched, or paid. The State Department has its consuls and ministers, and other representatives, in every civilized nation. The Treasury Department has its custom-house officers wherever a duty is to be collected, and its assessors and collectors wherever an internal tax is to be levied and collected. Whatever information is needed by them these officers can give, and may frank their answers. But the Department of Agriculture has no such officers. All it has are in the rooms of the department. Yet to discharge its duties under the acts of May, 1862, and of February, 1863, it must have a correspondence from ocean to ocean, and from Maine to Texas.

A just construction of the act of Congress of last session would seem to have limited its restrictions to the departments having recognized officers through whom they may receive communications. To apply them to the Department of Agriculture, which has none, is imputing to Congress the folly of enjoining duties on this department, which demands a most extensive correspondence, when it has no recognized officers, but voluntary correspondents only, giving to it the proper mail facilities; and then, retaining the duties, but withholding the necessary mail necessities. Congress may accidentally pass two acts having an apparent conflict, but the rule of construction in such cases is well known; and that is, so to construe the acts as not to conflict with each other.

Rather than be unfaithful to the duties demanded of him by the act of Congress, and by the interests of agriculture, the Commissioner has determined to prepay all postage of his regular correspondents; for to ask of them unpaid information, and to pay their own postage, too, would be an act derogatory to the dignity of this department and to the courtesy which was due to them in their efforts to advance the interests of agriculture.

THE TABLES OF CROPS FOR MAY AND JUNE.

Winter wheat.—The appearance of this crop in June varied in different localities. In Nebraska Territory it was destroyed by the winter, and in New Hampshire much injured from the same cause. But the general appearance is but one-tenth below an average. In the great wheat-producing States of Illinois, Indiana, Iowa, Maryland, Michigan, New York, Pennsylvania, and Wisconsin, the average is still better, being but a half-tenth below it. Ohio is the only large wheat-producing State that falls below the general average, being two-tenths below. The injuries from Hessian fly, rust, freezing out, and all other casualties are so small as to amount to but one and one-third tenth. Against this we have in the table for May a tenth more land sowed than in 1862, which was the largest crop ever grown in this country.

Spring wheat.—This presents a better general average, being but three-fourths of a tenth below the average of a good crop, and having sustained but one-tenth injury from all causes.

Barley.—This crop is excellent, being one-tenth more than an average in the amount sown, and but a half-tenth below it in appearance.

Corn.—This, our national crop, is reported as generally small in size on account of the drought of the latter part of May and the first half of June in some States, and nearly the whole of it in others. The entire injury it sustained from worms, drought, and all other causes, is but one and a half tenth, and its appearance is but one-tenth below the standard of a good crop. This crop is tried hardest in the usual July drought, but every appearance of the weather, which is now generally favorable from the fall of warm and abundant rains, gives assurance that there will be no July drought.

Oats.—This crop has undoubtedly suffered much from drought. If it escapes the rust it may still be better than the crop of last year. New York and Pennsylvania are the great oats-producing States, and in the first of these this crop has not suffered much.

Tobacco.—On account of the war this has increased rapidly in the loyal States. The amount planted this year, as shown by the table for June, is seventy-five per cent. over that of last year. In appearance it is nearly an average, being but one-tenth below it.

Grass.—This crop is certainly injured very much from drought generally, and, in certain localities, from freezing out. The table for June shows it to be two-tenths below the standard appearance of a good crop. But great as is the value of the hay crop, being second only to that of corn, yet its deficit is always supplied by greater saving of the wheat and oats straw, and cutting up and topping corn.

Flax.—As was expected, this crop has increased over that of last year, in the amount sown, one hundred and twenty per cent., being in the June table 22, or twelve above the average of last year's crop. Should the drought permanently injure it so as to decrease the yield per acre of lint, yet, from this great increase in acreage, there is no doubt that the country will still have a good supply of lint out of which cotton flax may be made, should the experiments now making by this department prove successful for the conversion of the lint into flax cotton. The quantity of seed will be largely increased.

Wool.—The tables show an increase in the number of sheep over those of last year of twenty per cent. Much has been said of the great clip of wool this season, many placing it as high as one hundred million of pounds. It is necessary to show what the increase is, and what is the crop of wool.

The number of sheep, by the census report for 1860, is 24,823,566, and the pounds of wool, 60,511,343. From this number of sheep is to be deducted 1,166,200 for mistake in the census report of those for Indiana. The rebel States produced 5,717,587 of the whole number, which must be deducted from

it, as they are not now represented in the wool market. Kentucky and Missouri raised in 1862, 2,039,601 sheep, and the ravages of war have destroyed largely of these. Deducting 1,000,000 on this account, we have the following table:

Whole number in 1860.....	24, 823, 566
From which take—	
Mistake in Indiana returns.....	1,166,200
Sheep of the disloyal States.....	5,717,587
Loss in Kentucky and Missouri.....	1,000,000
	<hr/> 7, 883, 787
Number in loyal States in 1860.....	<hr/> 16, 939, 779 <hr/>

The increase in 1863, as stated in the June reports to this department, is twenty-five per cent., and allowing it to be the same in 1861 and 1862, the whole number for 1861 would be 21,174,724, and in 1862, 26,468,405. This is the number from which the clip of 1863 was taken.

The average yield of sheep, per head, according to the census returns in 1850, was 2.42 pounds, and by those of 1860, 2.55 pounds. But this is clearly too low for the principal sheep-producing States of the north.

The number of the sheep of the loyal States was 17,198,219 in 1860, and the pounds of wool, 50,183,626, making the yield of wool 2.92 pounds per head. The number of sheep of the disloyal States was 6,097,587, and the pounds of wool, 9,748,702, making but 1.59 pounds per sheep.

The following table shows the yield, per head, of the following five large wool-producing States, according to the census returns of 1850, 1860, and the returns of the correspondents of this department in June of this year:

	1850.	1860.	1863.
New York.....	2.91	3.67	3.80
Pennsylvania.....	2.46	2.82	3.33
Ohio.....	2.58	3.33	3.53
Michigan.....	2.87	2.68	3.67
Vermont.....	3.35	4.02	4.54
	<hr/>	<hr/>	<hr/>
Average.....	2.83	3.31	3.77
	<hr/>	<hr/>	<hr/>

From all these data, it is safe to assume the yield in the loyal States at three pounds per head. The estimated number of sheep for last year being 26,468,405, the clip of 1863 would be 79,405,215 pounds.

Sorghum.—The increase of this crop, as stated in the June table, is twenty-seven per cent. In *appearance*, it is but little affected by the drought. Supposing that the increase, as given in the May tables, was too large, the inquiry as to the amount was renewed in the circulars for June, as the amount could then be better ascertained. The greater number of the returns for this month are also in their favor, and hence the increase of twenty-seven per cent. is, doubtless, correct.

Cotton.—So far the appearance of this crop is favorable. The dry weather enabled farmers to free the crop from weeds and grass. During the drought it was but one-tenth below the average of a good crop; and, in amount, the increase is eighty per cent. over last year in the localities where it is now cultivated, which are much fewer than those of last year.

Weather.—Under this general heading will be found in the first four columns the number of counties which have made returns of the weather, and the charac-

ter of it with reference to the crops. A good many correspondents did not make returns of it, and hence their counties are not represented in the table.

The first column shows the number of counties where the weather was *favorable* to crops; the second, where it was *dry*, not injuring them, but holding them back; the third, where it was *very dry*, producing an injury to them, especially to grass and oats during the month of June; the fourth, where it was *wet*, so much so as to be unfavorable to wheat and the cultivation of corn. The fifth column shows the average amount of rain that has fallen during the month, expressed in inches and hundredths of an inch; thus, 1.50 means an inch and a half. The sixth shows the times when the rain fell, whether in the beginning, middle, or end of the month. The word "distributed" shows that the rain has fallen at different times during the whole month. The seventh column indicates the number of observations from which the mean of the amount of rain was derived. These statements of the amount of rain are derived chiefly from the reports of the observers of the Smithsonian Institution. Hereafter it is expected to prepare a separate table of the matters connected with the weather; but, as all these reports are not in, it is thought best to connect them, at this time, with this table.

The table of the weather presents much that is highly interesting. In most of the States the month of June has been very dry, but in Kansas, Kentucky, and Missouri, there has been enough rain. In Ohio and Pennsylvania plenty has fallen, but during the last half only of the month. The report from Michigan is very extraordinary, showing a depth of rain of 19.07 inches, ten of which fell on one day.

The returns from the farmers corroborate those relative to the fall of rain, by the Smithsonian observers. They are, in other respects, exceedingly interesting. Thus we see in Kansas (which lies on the line separating the showery summer climate of the States from the dry one of California and New Mexico) the entire returns present an abundance of rain. So, too, but not quite to the same extent, are the reports from Missouri, of which, however, there are few on account of the war. But Iowa is the reverse of Missouri, reporting fifty-one counties *very dry*; Wisconsin has fourteen *very dry*, eleven *dry* against twelve *favorable*, and the entire returns from Minnesota exhibit every county as *very dry*. Why this remarkable difference between Kansas and Minnesota? Again: all the States lying east of the great lakes have had much more rain than those south of them during the first three weeks of June. Whence have these rains come? Were they produced by the cold west winds condensing the evaporation from the lakes? And why do Kansas and Missouri receive so liberally from the evaporations of the equator, whilst the States north of them have so little, and Minnesota none? The answer to these questions, to be understood, must be preceded by an explanation of that wonderful atmospherical machinery which the Creator has designed for the diffusion of heat and the distribution of moisture. The reports for the Smithsonian Institution must be closely scrutinized as to the temperatures, the direction of the winds and clouds, and the altitude of each place of observation. An article on these matters will be prepared for the ensuing monthly report.

MAY REPORT.

CONDITION OF THE CROPS.

	WINTER WHEAT.		SPRING WHEAT.		RYE.		CORN.		OATS.		POTATOES.		SORGHUM.		COTTON.	
	Average amount of land sown compared with 1862.	Appearance of crop at this date.	Average amount of land sown compared with 1862.	Appearance of crop at this date.	Average amount of land sown compared with 1862.	Appearance of crop at this date.	Average amount of land planted compared with 1862.	Appearance of crop at this date.	Average amount of land sown compared with 1862.	Appearance of crop at this date.	Average amount of land planted compared with 1862.	Appearance of crop at this date.	Average amount of land planted compared with 1862.	Appearance of crop at this date.	Average amount of land planted compared with 1862.	Appearance of crop at this date.
Connecticut	20	10	10	10	10	10	10	11	10	10	10	10	.....	.....	.....	.....
Delaware.....	9	9	8	9	11	11	12	9	12	8	12	9	8	12	15	12
Illinois.....	12	9	12	9	9	10	11	9	10	9	11	10	16	10	79	10
Indiana.....	10	11	10	10	10	10	10	10	9	10	11	10	15	10	20	10
Iowa.....	17	10	12	11	12	10	12	11	13	11	10	10	14	11	.....	.....
Kansas.....	18	12	6	11	15	11	10	11	10	10	12	12	13	10	83	10
Kentucky.....	9	11	.....	.....	9	9	8	10	8	9	9	10	15	10	27	12
Maine.....	.....	.....	11	10	10	10	9	10	9	10	11	10	.....	.....	.....	.....
Maryland.....	10	10	.....	.....	10	10	10	8	9	5	11	10	16	10	20	10
Massachusetts.....	10	9	11	10	11	10	10	9	9	10	10	10	.....	.....	.....	.....
Michigan.....	11	10	10	10	10	10	10	10	11	10	11	10	25	10	50	10
Minnesota.....	13	11	12	11	10	10	13	10	13	10	11	10	19	10	30	10
Missouri.....	12	11	10	8	11	11	11	10	9	8	10	10	11	10	15	10
New Hampshire.....	10	8	11	10	10	10	9	10	12	10	11	10	.....	.....	.....	.....
New Jersey.....	11	11	10	10	10	10	11	10	9	10	10	10	12	10	.....	.....
New York.....	11	10	10	10	10	9	10	10	11	10	11	10	11	11	.....	.....
Ohio.....	9	8	10	10	10	9	11	10	10	9	11	10	14	10	15	10
Pennsylvania.....	10	10	8	10	9	9	11	9	10	10	11	9	23	9	60	10
Rhode Island.....	10	10	10	10	10	10	10	10	9	10	10	10	.....	.....	.....	.....
Vermont.....	11	19	10	10	10	10	10	11	9	11	9	10	.....	.....	.....	.....
Wisconsin.....	12	10	12	11	11	10	11	10	12	11	11	10	28	10	.....	.....
Nebraska Territory	15	8	11	8	8	10	8	10	10	8	10	10	9	11	.....	.....
General average..	11	9½	10	10	10½	10	10½	9½	10.2	9½	11	10	15½	10½	37	10½

CALIFORNIA AND UTAH.

Since the above table was set up, a few returns have been received from California and Utah, in answer to the May circular.

CALIFORNIA.

Wheat.—There is no difference in this State between winter and spring wheats. This crop is sown in the months of December and January. In San Luis Obispo county, in the southern part, on the coast, the increase in the acreage of the crop is 25 per cent. over last year, and had an average appearance, but in Stanislaus county, in the valley between the Diablo and Nevada ranges, it was but three-fourths of a crop. *Corn*.—The increase in the acreage of this crop was from 20 to 50 per cent. *Barley*.—In Stanislaus county the increase was 100 per cent. over the crop of 1862. *Potatoes* are not increasing in acreage. The crops, generally, were "good" in appearance.

UTAH.

Winter wheat, in some parts, was increasing, but the climate seems to be unfavorable to this variety. *Spring wheat* was 12 per cent. above the crop of 1862. *Corn* 100 per cent. above it; *rye* 10 per cent. above; *potatoes* 25 per cent. above; *other roots* 20 per cent. above; and *sorghum* about 25 per cent. above.

JUNE REPORT.

CONDITION OF THE CROPS.

	WINTER WHEAT.		SPRING WHEAT.		BARLEY.		CORN.		OATS.		TOBACCO.		GRASS.		FLAX.		WOOL.		SORGHUM.		COTTON.	
	Appearance of crop in June.	Injury from Hessian fly, rust, and freezing out.	Appearance of crop in June.	Injury from Hessian fly and rust.	Appearance of crop in June.	Average number of acres compared with 1862.	Appearance of crop in June.	Injury from cut worm and drought.	Appearance of crop in June.	Injury from drought; and bad seed.	Appearance of crop in June.	Average amount of acres planted compared with 1862.	Appearance of crop in June.	Average amount, in acres, compared with 1862.	Appearance of crop in June.	Average number of sheep compared with 1862.	Appearance of crop in June.	Average number of acres planted compared with 1862.	Appearance of crop in June.	Average number of acres planted compared with 1862.		
Connecticut.....	10	9	10	.....	10	13	9	8	10	9 $\frac{1}{2}$	9	12	9	11	8	10	12	.....	.....	.....
Delaware.....	11	.....	.....	.....	10	10	8	8	9	8 $\frac{1}{2}$	9	13	10	10	9	12	10	15	.....	.....
Illinois.....	9	9	9	9	9	11	9	8	9	8 $\frac{1}{2}$	9	20	9	11	9	22	13	12	12	18		
Indiana.....	10	9	10	.....	9	11	9	9	9	8	9	21	9	11	10	20	15	14	10	26	
Iowa.....	9	9	8	8	9	11	9	9	8	8	9	24	7	7	9	23	15	10	13	30		
Kansas.....	11	.....	9	.....	11	13	11	9	11	.....	7	37	11	16	11	22	15	8	.....	.....
Kentucky.....	10	.....	.....	.....	9	10	9	8	5	8	7	.....	6	7	10	17	13	10	.....	.....
Maine.....	9	.....	8	9	8	11	9	9	9	9 $\frac{1}{2}$	10	.....	8	10	9	21	13	.....	.....	.....
Maryland.....	9	8	8	.....	8	10	8	7	7	7 $\frac{1}{2}$	10	20	9	10	8	25	11	15	22	.....	
Massachusetts.....	10	.....	10	.....	8	10	9	9	9	9	10	13	9	10	9	19	12	13	10	10
Michigan.....	9	7	9	9	9	10	9	9	9	9 $\frac{1}{2}$	10	18	10	11	9	26	12	13	9	13		
Minnesota.....	8	8	7	8	9	9	8	9	7	7 $\frac{1}{2}$	8	16	8	12	9	23	15	16	13	.....	
Missouri.....	9	8	8	9	10	11	10	9	8	8	10	15	8	10	9	21	11	15	13	.....	
New Hampshire.....	6	9	9	9	9	12	9	6	8	8	10	20	6	10	9	18	12	12	.....	.....
New Jersey.....	9	9	9	.....	9	10	7	8	8	7	10	13	8	10	9	23	10	9	12	.....	
New York.....	9	9	9	9	10	11	9	8	9	9	10	22	9	10	10	33	12	9	13	.....	
Ohio.....	8	9	9	9	9	10	9	8	7	7 $\frac{1}{2}$	8	15	7	10	8	24	12	12	10	.....	
Pennsylvania.....	10	9	9	.....	9	12	8	7	7	7 $\frac{1}{2}$	9	18	8	10	8	24	12	12	.....	.....
Rhode Island.....	10	.....	10	.....	8	13	8	8	9	.....	9	17	11	10	.....	.....	10	.....	.....	.....
Vermont.....	10	.....	10	.....	9	12	10	9	10	9	10	15	8	10	10	35	13	.....	.....	.....
Wisconsin.....	10	9 $\frac{1}{2}$	10	9	10	12	10	9	9	9	9	19	12	11	10	25	14	14	14	.....	
Nebraska Territory...	1	.....	13	.....	12	10	12	9	13	.....	10	.....	10	11	.....	.....	15	10	.....	.....
General average..	9	8 $\frac{1}{2}$	9 $\frac{1}{2}$	9	8 $\frac{1}{2}$	11	9	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	9	17 $\frac{1}{2}$	8	10 $\frac{1}{2}$	9	92	12 $\frac{1}{2}$	9 $\frac{1}{2}$	12 $\frac{1}{2}$	9	18	

JUNE REPORT—Continued.

WEATHER.

	Favorable.	Dry.	Very dry.	Wet.	Inches of rain.	Distribution of rain.	Number of observations.
Connecticut	2	1	3	.....	2.52	Beginning.....	One observation.
Delaware	2	1	.....	.....	.....	Middle and end..	Mean of four observations.
Illinois	24	15	39	3	0.94	End	One observation.
Indiana	25	13	15	.....	0.84	End	Mean of four observations.
Iowa	9	11	54	.....	1.46	Distributed	One observation.
Kansas	36	.....	.....	.....	5.95	Distributed	One observation, Louisville.
Kentucky	4	1	3	.....	4.26	Beginning.....	Mean of three observations.
Maine	1	4	6	2	1.71	Distributed	Mean of two observations.
Maryland	4	3	6	.....	1.83	Distributed	Mean of three observations.
Massachusetts	9	8	6	1	2.01	Distributed	On 22d day, 10 inches.
Michigan	20	12	5	.....	19.07	Middle and end..	One observation.
Minnesota .....	.....	.....	28	.....	0.27	Distributed	One observation.
Missouri	5	1	2	.....	3.59	Distributed	One observation.
New Hampshire	1	4	3	.....	2.70	Distributed	Mean of five observations.
New Jersey	8	5	4	.....	1.04	Middle and end..	Mean of nine observations.
New York	31	14	8	9	1.67	End generally....	Mean of seven observations.
Ohio	12	14	22	.....	2.43	.....	.....
Pennsylvania	30	9	84	.....	3.36	.....	.....
Rhode Island	2	1	2	.....	.....	.....	.....
Vermont	10	3	3	1	2.22	Distributed	Mean of three observations.
Wisconsin	12	11	14	.....	1.27	Distributed	Mean of two observations.
Nebraska Territory .....	.....	.....	.....	.....	2.84	Distributed	One observation.
Canada East .....	.....	.....	.....	.....	1.14	Distributed	Montreal.

UTAH.

Whilst reading proofs, the June return from the board of directors of Deseret Agricultural and Manufacturing Society has been received. *Winter* wheat is not so well adapted to Utah as *spring* wheat, of which 6,000 acres are now sown. Its appearance is fair. *Corn* and *oats* were good in appearance. *Tobacco* was growing well, but was regarded as an experiment only. *Grass* was suffering from drought; the number of acres in meadow was 1,500. *Cotton* was not cultivated. The *wool* crop was estimated at 60,000 pounds, and the number of sheep at 20,000. *Weather* on the 1st of July was dry.

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the months of May and June, and then the comparison between the weather for those months of this year and of the same months in five years previous. An examination of the last column in the last table will show how this season thus far compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for May and June, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND MOISTURE OF MAY, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Belfast	Waldo	Geo. E. Brackett....	22	87	7	33	54.9	3.4
Lisbon	Androscoggin....	Asa P. Moore.....	22	92	7	38	55.9	2.22
Cornishville	York.....	G. W. Guptill.....	22	92	7	34	56.6	2.13
Steuben	Washington	J. D. Parker	22	89	8, 15	37	51.0	4.00
Foxcroft	Piscataquis	Mark Pitman.....	30	85	15	34	54.3	.....
NEW HAMPSHIRE.								
Littleton	Grafton	Robt. C. Whiting...	23	89	3	30	55.8	4.5
VERMONT.								
Burlington	Chittenden	M. R. Petty	23	82	3	32	55.2	6.88
Lunenburg	Essex	Hiram A. Cutting...	21	88	6	40	57.1	3.52
Brandon	Rutland	Daniel Buckland....	21, 23	88	3	33	56.7	7.56
Craftsbury	Orleans.....	James A. Paddock..	23	84	3, 5	32	53.4	4.33
MASSACHUSETTS.								
Amherst.....	Hampshire	E. S. Snell	22	88	7	38	58.9	3.59
New Bedford	Bristol	Samuel Rodman....	22	83	8	42	57.1	3.52
Mendon	Worcester	Jno. George Metcalf.	22	90	7	36	57.5	2.10
Sandwich	Barnstable	N. Barrows, M. D....	22	83	7	38	53.7	3.62
Richmond	Berkshire	William Bacon	22, 23	90	7	36	60.7	.....
CONNECTICUT.								
Plymouth	Litchfield	Dwight W. Learned.	23	87	7	34	57.8	6.10
Pomfret	Windham	D. Hunt	22	86½	7	35	56.3	2.15
New Haven	New Haven	D. C. Leavenworth.	22	87	7	39	59.0	.....
Middletown	Middlesex	John Johnston.....	22	91½	7	38	59.9	1.74

Temperature and moisture of May, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Fishkill Landing....	Dutchess	W. H. Denning.....	21	86	7	38	57.2	3.32
Theresa	Jefferson	S. O. Gregory	30	83	3	35	55.8	2.65
Gouverneur	St. Lawrence....	C. H. Russell	22	82	5	34	56.0	2.13
Deaf and Dumb Asy.	New York City..	Prof. O. W. Morris..	23	88½	5	41	63.0	4.57
Wilson	Niagara	E. S. Holmes	22	85	4, 5, 6, 7	39	60.5	.....
Skaneateles	Onondaga	W. M. Beauchamp....	22	85	6	36	54.2	.....
Rochester	Monroe	M. M. Mathews	22	85	6	36	57.7	1.83
Oswego	Oswego	Wm. S. Malcolm	29	76	6	38	54.9	5.00
Clinton	Oneida	H. M. Paine, M.D....	29	88	7	39	61.4	2.97
Nichols	Tioga	Robert Howell.....	29	90	6, 7	39	59.7	.....
NEW JERSEY.								
Newark	Essex	W. A. Whitehead....	22	87½	7	38	60.5	4.49
New Brunswick	Middlesex	Geo. W. Thompson....	23	92	6	40	60.4	.....
Progress	Burlington	Thos. L. Beaus	23	95	6, 7, 8	45	63.9	.97
PENNSYLVANIA.								
Philadelphia	Philadelphia....	Pf. J. A. Kirkpatrick..	23	89	6, 7	41	64.6	4.79
Harrisburg	Dauphin	Heisely & Hickock..	23	89	7	42	66.0	3.38
Canonsburg	Washington	Rev. W. Smith, D.D....	21	82	7, 9	40	60.2	0.99
Blairsville	Indiana	W. R. Boyers	27	74	12	34	51.0	1.10
Fleming	Center	Samuel Brugger	24	92	6	42	62.0	2.02
MARYLAND.								
Schellman's Hills....	Carroll	Harriott M. Baer....	23, 24	85	6, 7	40	63.1	4.50
Washington College.	Kent	Prof. J. R. Dutton ..	23	88	6, 7	43	63.9	4.09
DIST. OF COLUMBIA.								
Smithsonian Inst....	Washington .....	.....	24	88	7	44	64.9	3.79
OHIO.								
Cincinnati	Hamilton	Geo. W. Harper	28	91	7	44	67.0	2.84
Bowling Green	Wood	W. R. Peck, M.D....	23	92	5, 6	42	63.5	1.92
New Lisbon	Columbiana	J. F. Benner	23	92	1, 7	42	61.5	1.41
Welshfield	Geauga	B. T. Abell, A.M....	23, 23	86	6, 7	41	62.1	3.25
Kelly's Island	Erie	Geo. O. Huntington..	22	84	5	40	59.9	2.12
Austintown	Ashtabula	Dole & Griffing.....	23, 29	88	7	38	59.2	2.15
Westerville	Franklin	Prof. Jno. Haywood....	23, 23	85	6	42½	63.5	2.62
Portsmouth	Sciota	L. Englebrecht	23	83	7, 8	48	60.5	0.80
Toledo	Lucas	J. B. Trembly.....	23, 23	92	6	41	63.4	2.44
Troy	Miami	Charles L. McClung....	23	90	7	42	65.7	3.85
INDIANA.								
Rockville	Park	Miss M. A. Anderson..	10, 21, 22	82	6	38	63.6	3.75
South Bend	St. Joseph	Reuben Burroughs....	21	88	5	37	61.5	3.99
New Albany	Floyd	E. S. Crozier, M.D....	23, 23	87	7	48	66.8	.....
New Harmony	Posey	Jno. Chappellsmith ..	21	87	6	41	66.3	1.35
ILLINOIS.								
Augusta	Hancock	S. B. Mead	10	86	5	39	62.9	2.81
Manchester	Scott	Jno. & Miss E. Grant..	10	86	5	36	61.0	1.80
Winnebago	Winnebago	James N. Tolman	22	84	5	37	60.5	4.97
Lombard University.	Knox	Rev. W. Livingston....	21	82	5	40	63.9	3.62
Peoria	Peoria	Frederick Brendel ..	11, 24	87	5	39	65.7	2.97
Riley	McHenry	E. Babcock	20, 21	80	5, 6	34	58.2	6.20
Waverley	Morgan	Timothy Dudley	10, 21	85	6	36	63.2	1.15
Chicago	Cook	Samuel Brookes	22	86	5, 6	34	54.7	.....
Ottawa	La Salle	Emily H. Merwin....	22	88	6	37	52.7	3.64

Temperature and moisture of May, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
IOWA.								
Algona.....	Kossuth.....	Dr. & Miss McCoy..	20	88	5	40	62.3	<i>In.</i> 4.21
Iowa City.....	Johnson.....	Theo. S. Parvin....	20	80	7	36	58.7	4.56
Pleasant Plain ..	Jefferson.....	T. McConnel.....	21	92	5, 7	38	65.0	1.93
Byron township ..	Buchanan.....	A. C. Wheaton.....	20, 21	85	6	40½	62.5	7.50
Dubuque.....	Dubuque.....	Asa Horr, M.D.....	20	86	5	42	63.0	1.73
Fort Madison.....	Lee.....	Daniel McCready....	20, 24	85	5, 6	40	64.5	1.35
WISCONSIN.								
Bloomfield*.....	Walworth.....	Wm. H. Whiting....	21	84	5, 7	33	57.1	-----
Superior.....	Douglass.....	William Mann.....	20	90	6	33	52.1	2.67
Madison.....	Dane.....	John W. Sterling....	22	81	5	38	58.0	-----
Milwaukee.....	Milwaukee.....	I. A. Lapham, LL.D.	20	84	5	32	58.8	5.21
MICHIGAN.								
Ypsilanti.....	Washtenaw.....	C. S. Woodard.....	22	88	5	35	60.3	-----
Monroe.....	Monroe.....	Florence E. Whelpley	11	86	5	38	63.2	-----
MINNESOTA.								
St. Paul.....	Ramsay.....	A. B. Patterson.....	20	86	5	39	59.9	2.87
Forest City.....	Meeker.....	Henry L. Smith.....	19	90	5, 7, 9	40	59.9	-----
Beaver Bay.....	Lake.....	-----	20	84	2	33	52.0	1.01
NEBRASKA.								
Bellevue.....	Sarpy.....	William Hamilton....	15	87	6, 23	40	63.0	3.88
Elkhorn City.....	Washington.....	Miss A. M. J. Bowen..	19, 20	86	5	45	63.8	-----
MISSOURI.								
St. Louis.....	St. Louis.....	Aug. Fendler.....	28	88	6	40	64.9	2.45
Canton.....	Lewis.....	George P. Ray.....	10, 21	90	6	41	64.7	2.36
Athens.....	Clark.....	I. T. Caldwell.....	29	41	7, 11	32	36.3	†
KANSAS.								
Lawrence.....	Douglass.....	Arthur N. Fuller....	24	90	6	46	69.5	4.87

* Geneva post office.

† Eight snows.

TEMPERATURE AND MOISTURE FOR JUNE, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornish.....	York.....	Silas West.....	28	87	21	46	56.00	<i>In.</i> -----
Lisbon.....	Androscoggin....	Asa P. Moore.....	28	87	5	50	62.58	1.38
Cornishville.....	York.....	G. W. Guptill.....	28	85	8	50	62.88	1.91
Dexter.....	Penobscot.....	B. F. Wilbur.....	29	86	21	49	60.81	3.00
NEW HAMPSHIRE.								
Barnstead.....	Belknap.....	Charles H. Pittman..	28	87	9	50	63.20	-----
Stratford.....	Coos.....	Branch Brown.....	29	84	7	43	58.66	2.70
VERMONT.								
Craftsbury.....	Orleans.....	James A. Paddock..	27	83	16	44	58.02	2.83
Burlington.....	Chittenden.....	M. K. Petty.....	28	79	8	49	61.08	1.95
Brandon.....	Rutland.....	David Buckland.....	29	86	7	48	64.53	1.89
Lunenburg.....	Essex.....	H. S. Cutting.....	28	93	4	40	61.70	1.47

Temperature and moisture for June, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MASSACHUSETTS.								
New Bedford	Bristol	Samuel Rodman	15	81	8	53	62.45	2.49
Sandwich	Barnstable	N. Barrows, M. D.	30	78	17	53	61.01	2.30
Mendon	Worcester	John Geo. Metcalf	15	86	13	52	63.12	.90
Worcester	Worcester	Henry C. Prentiss	15	85	20	51	64.01	1.80
Baldwinsville	Worcester	Rev. E. Dewhurst	28	82	17	50	57.10	.....
Topsfield	Essex	John H. Caldwell	15	87	10	50	62.36	1.50
CONNECTICUT.								
Colebrook	Litchfield	Charlotte Rockwell	15	83	9	50	62.37	.....
Canton	Hartford	Jarvis Case	15	62	29	46	52.26	.....
NEW YORK.								
New York	New York	Prof. O. W. Morris	15	90	7	56	69.37	1.43
Fishkill Landing	Dutchess	Wm. H. Deming	15	89	4	53	62.27	1.91
Buffalo	Erie	Wm. Ives	29	90	1	49	62.00	1.42
Nichols	Tioga	Robert Howell	15	90	8	51	58.30	.....
Skaneateles	Onondaga	W. M. Beauchamp	15	82	3	47	61.30	.....
Marathon	Cortland	Lewis Swift	11	85	4	41	57.51	.....
Palermo	Oswego	E. B. Bartlett	28	84	3	48	62.43	.....
Gouverneur	St. Lawrence	C. H. Russell	28	86	6	48	62.75	1.28
Theresa	Jefferson	S. O. Gregory	27	85	6	48	61.99	2.38
Rochester	Monroe	Prof. Chester Dewey	15	86	7	48	65.58	1.37
Baldwinsville	Onondaga	John Bowman	28	80	4	48	62.00	.....
Garrison's P. O.	Putnam	Thomas B. Arden	15	85	7	54	64.00	.....
Oneida	Madison	Stillman Spooner	28	84	17	46	62.43	3.18
NEW JERSEY.								
Mount Holly	Burlington	M. J. Rhees, M. D.	15	87	14	57	67.16	.....
Newark	Essex	W. A. Whitehead	15	87	4	50	65.00	10.45
PENNSYLVANIA.								
Susquehanna Depot	Susquehanna	H. H. Atwater	15	92	8	53	68.20	1.38
Byberry	Philadelphia	Isaac C. Martindale	15	86	7	53	66.75	3.03
Fallsington	Bucks	Ebenezer Hance	15	88	7	57	66.66	2.70
Canonsburg	Washington	Rev. W. Smith, D.D.	15	88	4	46	63.66	2.78
Harrisburg	Dauphin	John Heisley	17	92	7	59	64.38	2.95
Blairsville	Indiana	W. R. Boyers	15	74	8	39	49.20	9.08
Berwick	Columbia	J. E. Berwick	17	89	4	50	68.33	.....
Haverford	Delaware	Paul Swift	17	84	8	50	66.24	3.02
Silver Spring	Lancaster	H. G. Bruckhart	17	93	7	56	66.00	.....
MARYLAND.								
Chestertown	Kent	Prof. J. R. Dutton	17	89	8	57	70.02	1.91
Schellman's Hills	Carroll	Harriott M. Baer	17	88	8	56	65.20	3.50
OHIO.								
Kelly's Island	Erie	Geo. C. Huntington	17	86	6	52	66.51	3.10
Milnersville	Guernsey	Rev. D. Thompson	17	93	8	39	66.08	1.25
New Lisbon	Columbiana	J. F. Benner	17	90	4	40	66.47	2.98
Newark	Licking	J. Dille	17	94	8	40	68.10	1.43
Norwalk	Huron	Rev. A. Newton	17	91	8	50	64.88	.97
Austintown	Ashtabula	I. G. Dole and C. S.						
		S. Griffing	17	89	6	49	63.03	.08
Westerville	Franklin	Prof. Jno. Haywood	17	91	7	50	63.08	2.53
Hudson	Summit	Prof. C. A. Young	17	90	6	51	63.07	1.52
Welshfield	Geauga	B. F. Abell, A. M.	17	90	7	52	65.16	2.80
Bethel	Clermont	Geo. W. Crane	17	91	7	51	64.10	2.10
Cincinnati	Hamilton	R. C. Phillips	17	90	9	58	71.00	1.75

Temperature and moisture for June, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
				°		°	°	In.
Urbana University..	Champaign	M. G. Williams	17	92	8	53	68.15	2.63
Toledo	Lucas	J. B. Trembley	17	95	6	48	75.00	2.05
INDIANA.								
South Bend	St. Joseph	Reuben Burroughs ..	28	92	8	49	65.50	.22
New Harmony	Posey	John Chappelsmith ..	17	90	4	58	70.03	6.92
Rockville	Park	Miss. M. A. Anderson	16	92	3	46	64.13	.58
ILLINOIS.								
Peoria	Peoria	Frederick Brendell ..	17	93	2	52	70.50	.45
Manchester	Scott	John and Ellen Grant	16	92	3	48	67.10	.80
Augusta	Hancock	S. B. Mead	16	90	21	50	67.20	.26
Riley	McHenry	E. Babcock	16	93	1	49	64.36	1.40
Dixon	Lee	J. Thomas Little	15	94	7	44	63.10	7.03
Galesburg	Knox	Wm. Livingston	16	91	7	49	69.06	.....
Waverly	Morgan	Timothy Dudley	15	96	8	51	68.05	.25
Elmira	Stark	O. A. Blanchard	16	95	7	50	69.38	.29
Sandwich	De Kalb	N. E. Ballou	15	92	7	50	67.63	1.26
MICHIGAN.								
Monroe	Monroe	F. E. Whelpley	17	93	5	48	66.21	19.70
Marquette	Marquette	Frank M. Bacon	14	94	5	42	59.27	2.40
IOWA.								
Lyons	Clinton	P. J. Farnsworth	14	94	7	46	68.00	1.30
Algona	Kossuth	F. McCoy, M. D., and Miss McCoy ..	12	94	5	48	67.02	2.25
Fort Madison	Lee	Daniel McCready	15	94	3	52	70.80	2.50
Byron	Buchanan	Alex. Camp Wheaton	16	94	7	52	68.74	.12
MINNESOTA.								
Forest City	Meeker	Henry L. Smith	14	94	2	48	61.09	.27
KANSAS.								
Manhattan	Riley	Isaac T. Goodnow ..	27	92	22	53	70.17	5.95
Fort Riley	Davis	W. F. McAlister	27	94	9	57	72.84	4.96
NEBRASKA.								
Bellevue	Sarpy	Wm. Hamilton	27	90	20	48	67.50	2.84
Richland	Washington	Miss A. M. J. Bowen	27	96	21	52	67.89	.....
WISCONSIN.								
Milwaukee	Milwaukee	Paul Winkler	14	90	6	47	62.20	0.87
Rocky Run	Columbia	W. W. Custes	20	84	6	40	59.21	.....
Manitowoc	Manitowoc	Jacob Süps	14	92	3	50	62.44	1.67
Bloomfield	Walworth	W. H. Whitney	16	92	3	50	61.80	.....
MISSOURI.								
Harrisonville	Cass	John Christian	27	82	8	56	71.29	.....
Athens	Clark	J. F. Caldwell	14	92	7	54	76.09	.....
Wayacenda Prairie..	Lewis	George P. Ray	16	100	7	50	70.80	.65
CANADA EAST.								
Montreal	Montreal	Archibald Hall, M.D.	30	83	8	52	65.49	1.14

The following tables show the average temperature and the average fall of rain in the different States during the months of May and June every year since 1854:

MAY.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for the 5 years.		Averages for 1863.	
		Mean, ther.		Mean, rain.		Mean, ther.		Mean, rain.		Mean, ther.		Mean, ther.		Mean, rain.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	6	49.7	3.4	49.6	5.7	51.7	4.1	50.1	3.5	54.7	3.5	51.1	4.1	54.5	2.99
New Hampshire	3	54.7	1.1	52.4	4.6	54.5	6.0	51.7	3.6	51.2	2.2	52.9	3.5	55.8	4.50
Vermont	4	54.2	0.2	51.7	3.0	52.1	4.8	52.3	3.3	57.9	1.8	53.8	2.6	55.6	5.57
Massachusetts	12	55.1	2.9	52.4	6.3	54.6	5.2	52.8	3.1	57.6	4.8	54.5	4.5	57.6	3.21
Connecticut	4	55.3	2.2	53.1	5.5	54.1	5.2	53.1	2.8	57.5	4.0	54.6	4.0	58.2	3.66
New York	17	56.7	2.8	54.0	3.3	53.9	4.6	54.1	4.4	61.5	2.8	56.0	3.6	58.0	3.66
New Jersey	4	60.2	2.7	57.3	4.0	56.6	8.1	55.4	4.7	60.6	1.8	58.0	4.2	61.3	2.73
Pennsylvania	19	61.1	3.0	58.5	2.8	57.7	6.6	57.8	7.4	64.3	2.1	59.9	4.4	60.8	2.46
Maryland	4	64.0	2.6	62.1	3.5	61.8	6.3	59.0	6.7	64.1	3.5	62.2	4.5	63.5	4.30
District of Columbia ..	1	64.2	1.4	55.3	4.2	61.3	5.7	60.9	7.3	64.8	3.9	61.3	4.5	60.0	3.79
Ohio	20	62.4	3.8	60.3	2.9	55.3	5.0	58.8	7.3	65.5	2.6	60.4	4.3	62.6	2.34
Michigan	7	59.1	1.5	52.9	3.9	52.1	3.3	52.3	6.1	56.9	2.9	54.6	3.5	61.8	.....
Indiana	5	64.5	3.5	61.9	3.0	57.4	4.4	60.7	8.9	67.1	2.2	62.3	4.4	64.5	3.03
Illinois	13	64.1	5.1	61.0	4.4	56.5	2.9	58.2	8.1	63.3	4.3	60.6	5.9	59.1	3.40
Missouri	2	66.8	7.2	62.1	3.0	59.2	3.1	64.0	10.6	68.2	6.6	64.1	5.4	55.3	2.41
Wisconsin	6	60.3	3.1	55.0	3.5	50.4	4.1	52.1	6.8	56.8	4.3	54.9	4.5	56.7	3.94
Iowa	9	62.9	3.2	60.8	3.5	56.2	7.3	55.7	7.3	63.2	5.4	59.8	5.3	62.7	3.55
Minnesota	3	60.9	.....	58.9	4.2	52.4	2.8	51.7	2.8	53.5	5.6	55.5	3.8	57.3	1.94
Nebraska Territory ..	3	.....	.....	.....	.....	.....	.....	53.1	4.4	64.6	5.6	58.6	5.0	63.4	.....
Kansas	3	55.8	2.7	61.7	5.2	66.6	8.0	60.7	5.2	69.5	4.87
California	2	61.9	1.9	63.6	62.3	0.2	63.0	1.3	62.7	1.1

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Maine	6	61.7	6.1	63.8	2.9	59.3	3.7	63.3	2.1	60.3	7.2	61.7	4.4	60.57	2.29
New Hampshire	4	63.9	3.8	67.2	2.0	61.8	3.3	67.4	2.3	53.7	5.1	62.8	3.3	60.93	2.70
Vermont	5	60.7	8.4	66.3	2.5	61.2	4.9	67.6	3.8	62.0	4.0	63.6	4.7	61.33	2.14
Massachusetts	12	54.3	4.0	66.6	3.0	62.5	2.5	66.9	4.7	63.6	6.5	62.8	4.1	61.67	1.80
Connecticut	4	64.8	4.1	67.4	2.7	62.1	3.1	62.1	3.9	62.9	7.3	63.9	4.3	57.63	.....
New York	17	63.2	5.5	68.3	3.1	63.4	6.8	69.7	4.1	62.9	4.0	65.5	4.7	62.46	1.85
New Jersey	4	68.8	5.5	72.2	2.8	67.0	6.6	72.8	4.2	67.3	3.5	69.6	4.5	66.16	10.45
Pennsylvania	19	67.3	8.2	72.5	2.9	67.4	7.4	73.6	4.4	67.7	3.7	69.7	5.3	63.49	3.56
Maryland	5	70.8	5.7	75.0	3.0	72.4	8.3	73.8	3.8	69.7	3.6	72.3	4.9	67.61	2.70
District of Columbia ..	1	71.2	5.6	74.7	5.9	71.6	6.5	76.4	1.4	71.4	5.0	73.0	4.9	70.20	2.55
Ohio	19	68.5	8.5	73.0	3.4	67.5	5.2	72.9	5.2	66.8	4.4	69.7	5.4	61.51	1.94
Michigan	7	63.5	8.4	68.8	4.6	63.4	3.7	70.1	3.9	61.3	3.3	65.4	4.9	62.74	10.78
Indiana	5	68.6	5.2	76.5	2.1	68.0	4.7	73.5	5.6	69.9	4.7	71.3	4.5	66.53	2.62
Illinois	14	67.8	2.8	75.1	2.6	62.6	3.9	72.8	5.8	66.6	2.9	69.0	3.6	67.30	1.45
Missouri	2	71.6	4.3	79.5	1.1	70.6	2.6	76.5	6.7	72.5	11.0	60.1	5.2	72.72	.65
Wisconsin	9	63.7	3.9	64.5	4.1	62.1	4.5	69.0	5.3	62.3	5.1	64.3	4.6	61.41	1.22
Iowa	8	68.4	5.0	73.5	1.9	68.3	1.8	72.2	6.4	66.2	5.6	69.7	4.1	68.64	1.54
Minnesota	3	66.7	5.0	67.4	2.8	64.5	4.1	67.7	2.8	59.8	6.5	65.2	4.2	61.90	.27
Nebraska Territory ..	2	.....	.....	.....	.....	70.6	3.3	74.5	7.1	71.0	2.8	70.9	4.3	67.69	2.84
Kansas	3	72.1	1.1	74.9	8.3	73.2	5.8	73.4	5.1	71.50	5.91
California	2	69.3	0.0	66.5	0.2	68.1	0.1	72.4	1.3	69.1	0.4

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MONTHLY REPORT

OF THE

CONDITION OF THE CROPS.

DEPARTMENT OF AGRICULTURE,

Washington, August 10, 1863.

In presenting the monthly report for July the Commissioner of Agriculture congratulates the farming community upon the flattering prospects which all the great crops of the country present. The wheat crop, just harvested, is most excellent, both in amount and quality, and the corn crop promises to be a full one, although in some localities in the west, where the drought of June has extended into July, it may be not so good.

To his regular correspondents he would convey his warm thanks for their continued co-operation in aiding to render his Department useful to agriculture, and to many casual ones he tenders his best wishes for their suggestions on many useful subjects. He has but one regret to communicate: Last month he caused circulars to be sent to the county agricultural societies and farmers' clubs, that he might learn the names of the societies and of their officers. This was done that the Department might be placed in communication with them, as he regarded them the proper medium by which the annual and monthly reports and seeds should be distributed. He regrets to say that not more than one-half of them responded to the circulars sent. If the farmers of counties having such delinquent societies do not receive these reports and seeds, they will know that the blame does not rest on this Department.

ISAAC NEWTON, *Commissioner.*

JULY REPORT ON THE CONDITION OF THE CROPS.

In presenting the July report on the condition of the crops during that month it is desirable to call attention to some matters connected with the operations of this Department:

1. *The character of the seeds distributed.*—In the circular for July an inquiry was made as to the quality of the seeds distributed. This was done because much complaint has heretofore existed against the seeds sent out by the Patent Office, both as to their varieties and the goodness of the seed, but little of it germinating. It was thought useless to send out these seeds unless extensive inquiries were made as to their excellence in every respect.

The answers received are very gratifying. But few complained that the seeds failed to sprout, and so general has been the answer that they all germinated that where they failed to do so it is evidently to be attributed to unfavorable weather, or unskillful planting. Assurances are abundantly given that the varieties sent out are equally as good, and it is hoped that farmers will carefully preserve the seeds from the varieties received from this Department.

Several of our regular correspondents stated that they had not received any. The failure to do so must not be attributed to the Department. They, above all others, shall receive from it whatever it has to distribute, because by their voluntary and kind aid to advance the objects of the Department, they justly merit every favor the Commissioner has to bestow. Nor can there be doubt that Congress also will show its regard for this aid in providing them with every facility essential to the intelligent performance of their voluntary duties as correspondents.

The *Marsden Spring Wheat* has entirely failed to sustain its character in this country as a "*spring*" wheat. It is an English variety, of great excellence there, and hence it was desirable to test it here. But there is a great difference between the English and American climates. Although England lies much north of the United States, yet the Gulf Stream passes by it, and mitigates the rigors of winter by its immense heat. The English farmer can plough at all times of the winter, and spring wheat is sown in February and March. Their harvest is much later than ours—at least six weeks—and hence their spring wheats have a season of growth double the length of our own. This is the reason of the failure of the Marsden variety, and has much to do with the full and perfect development of its beautiful grains.

The following correspondence shows the circumstances under which this variety was purchased, and the hopes that induced its trial:

"DEPARTMENT OF AGRICULTURE,
"Washington, D. C., August 7, 1863.

"DEAR SIR: The very handsome looking 'Marsden White Spring Wheat,' purchased by you last fall of Charlwood & Cummins, in England, has not proved successful as a spring wheat in any part of our country. From your large experience in the grains and climate of both England and your own country, you can explain this to the satisfaction of the farmers of the country.

"Very respectfully, your obedient servant,

"ISAAC NEWTON,
"Commissioner.

"Colonel B. P. JOHNSON,
"Secretary of the New York State Agricultural Society."

"STATE OF NEW YORK, AGRICULTURAL ROOMS,
"Albany, August 10, 1863.

"DEAR SIR: In answer to your letter of the 7th instant, in relation to the 'Marsden White Spring Wheat'—that it has not proved successful here as a spring wheat—I presume the reason of this is owing to the difference of climate and time of sowing. In England spring wheat is sown usually in February or early in March, and the wheat plants in England are slow to start into a healthy growth. The season there being longer than ours enables them to secure the crop in good condition.

"I took the best advice I could obtain, and, from the advice received, purchased the variety sent you, which, if it had proved as I hoped it would, must have been of great advantage to our country. I regret its failure, as the wheat was of extraordinary fine quality.

"Very respectfully yours,

"B. P. JOHNSON.

"Hon. ISAAC NEWTON,
"Commissioner of Agriculture."

2. *Climate* has a great influence on all vegetable production. The climate of the United States is a peculiar one, marked by great extremes of heat and cold, and wet and dry. It is as essential to study its characteristics as it is to determine the properties of our various soils. Hence the importance attached to it in these monthly reports, by a publication of the meteorological tables furnished by the Smithsonian Institution, showing the phenomena of the climate for each month, and when compared with a period of five preceding years. These tables will be preceded by an article in reference to them, and by which it is hoped the American farmer may be induced to take an interest in a climate so peculiar in its differences between the Pacific and Atlantic coasts, and in its changes, uncertainties, and extremes in the older States. For this purpose, too, it is recommended to carefully preserve these reports, because references to preceding reports will constantly be made in succeeding ones.

3. *The tables for July* demand that the earnest attention of our regular correspondents be called to the manner in which our estimates are made from their reports.

First. To questions asking the amount of a crop, answers are returned in two ways: *first*, by the whole amount being stated in figures, thus: wheat, 120,000 bushels; and *second*, by the amount stated as an average, thus: 10, meaning there is an average crop; or in tenths above or below an average. Now, in such States as California and Ohio, where the amounts of the crops are annually taken with reliable care, there is furnished to our correspondents a basis by which they can estimate the amounts raised; but where they are not thus taken, the estimates must partake too much of guessing. But as it is desirable to have uniform returns, it is requested that all answer according to the above second mode; that is, by stating how much it is above or below an average crop, which is represented by the figures 10. This Department possesses better means of determining what an average crop is for each county than its correspondents; and the familiarity of the statistical division with the general subject enables it to make the proper investigations. When the several States shall have adopted a proper and uniform mode of returning their agricultural productions annually, the difficulties embarrassing our correspondents and this Department will have vanished.

Second. A good many of our correspondents make no returns of the *injuries* to the crops. This leaves it doubtful whether there is any injury, or whether the injury is omitted to be stated. Such course involves this difficulty: If ten counties are returned, and of these the injury to a crop is stated in five, and not stated in the remainder, the amount of the injury of the five is taken and divided by ten, the number of all the counties, because any other course would make the five injured crops represent the condition of the entire ten. Hence, our correspondents are especially asked to give the injury in all cases, and where there is none to represent it by a 0.

Third. An intelligent correspondent suggests that in making up the averages for the States from the returns of the counties, counties of equal production should be averaged together. This is doubtless the correct mode when precise quantities are to be obtained, but that is unnecessary in our tables of the condition of the growing crops. Our purpose is to show whether the crop approximates to an average one, and this is sufficiently determined when all the counties are averaged together. The labor of averaging counties of equal production, that the small differences in the two modes might be obviated, would be too great.

Fourth. A gentleman who is a corresponding secretary of the State Board of Agriculture of a leading western State thus writes: "There are too many abstractions in it, (the table,) and the results are too complex—rather too 'crowded' to suit the majority of readers. It is so condensed that it requires men to *think*, and very few take that trouble about anything."

There is more than one truth in this extract, and that contained in the last clause of the last sentence is as troublesome as it is unfortunate. The multiplicity of books and papers have rendered thinking an obsolete labor, and that men may be informed without thinking demands a multiplicity of words that requires a much greater extent of printed matter than the monthly report contains. The tables are as stated. They require a little study—not much, however—and, conscious that that little would not be given by many, the matter immediately preceding them was prepared for their benefit. It would be desirable to show the condition of the crops of each State separately in words, but to do this will necessarily require an enlargement of the monthly report. It is the purpose of the Department to do this as soon as is advisable.

But still a great excellence of the plan adopted in the table is this very condensation. Its utility may be seen by comparing it with newspaper articles on the crops which have recently appeared in some western papers. Statements of bad crops on account of drought from eight or ten counties make such an impression as to induce the belief that the crops are to be generally a failure. Among the peculiarities of our climate are these localities of great dryness, and the suffering crops in them are certain to elicit great complaints. They appear also in the returns from our correspondents, but when *condensed* with the great number of counties where the drought does not prevail, the injury is brought down to its proper proportional amount.

4. The favor given to the first monthly report is gratifying to the Department. The purpose had in view meets with general approbation, and letters communicating it are constantly received. The difficulties that surround the undertaking seem to be appreciated by many, and the time essential to perfecting the plan is accorded by all.

5. The *wheat crop* is safely harvested, and it is one of the best, if not the very best, ever grown in the United States. It is not free from local injuries, but this is true of every year. A correspondent from Indiana thus writes on the 3d day of August: "Wheat threshing has been in progress for ten days, and shows a greater damage from the midge than was anticipated. On one farm last year the yield was an average of twenty bushels per acre; this year five. Some farmers put the average below eight bushels; my opinion is that the crop for this county will not vary much from ten bushels per acre." Although the threshing often exhibits injuries not before suspected by the farmer, yet the returns to this Department since spring show a much less injury to the crop than usual. It must be regarded as a most excellent one now, but the returns next month, which will be based on the threshing, may somewhat modify this opinion. An interesting inquiry with every farmer is, "What will be the probable foreign demand for wheat?" Large as was the crop of last year, the general activity at home in most branches of business, and the heavy foreign demand, assured to him remunerative prices. So long as the war lasts the same home demand will prevail, but present indications are not favorable to so great a foreign demand. All accounts represent the English crops as very favorable, but still they may be much injured before they are harvested. This Department ought to be placed in close connexion with our consuls abroad, so that interrogatories, similar to those answered by our home correspondents, might be addressed to them.

The following table shows the exports of breadstuffs from the port of New York for the first seven months in the years 1861, 1862, and 1863, ending July 31 of each year:

	1861.	1862.	1863.
Wheat flour.....barrels..	1,484,599	1,780,733	1,441,220
Rye flour.....barrels..	6,557	5,581	4,079
Corn meal.....barrels..	64,304	97,720	79,894
Wheat.....bushels..	11,990,578	9,906,370	8,835,633
Rye.....bushels..	257,842	938,457	358,537
Corn.....bushels..	5,178,335	7,222,475	6,441,593

The decrease in amount, although not in value, which this table exhibits, is chiefly owing to an advance of prices here. How far there is hope of an improved or an equal demand that will prevent a further decrease cannot now be determined positively; but, as remarked, the indications do not favor a demand equal to the present.

6. The losses to the wheat crop from *injuriously insects* are far greater than is generally supposed. It is only when they become widespread, causing a partial abandonment of the crop, as was the case in New York and the New England States on the advent of the aphid, that these insects attract observation. But this Department receives too many letters, such as that from which an extract has been made, to be insensible to the necessity of aiding the farmer against losses of this character. Congress, too, has deemed them too important to be disregarded, and has directed this Department to engage the services of a skillful entomologist. This has been done, and, that his services may be rendered as efficient to the farmers as possible, his instructions to them will form a part of the monthly reports. They will find that these injurious insects have their inatural enemies, and to preserve and protect the latter is the duty of all.

7. *Fruits*.—In the tables will be found inquiries in regard to fruits. They constitute a great element of agricultural wealth. Although they are scarcely known in the tables of our foreign exports, yet they constitute an important article in the home trade, and, what is still better, a most healthful food to every citizen. Whilst individual energy has done much towards the multiplication of them, yet much more remains to be done, for the extremes of our climate, and its numerous destructive insects, call for concerted public action, that the injuries arising from both may be alleviated. To aid this work is a duty of this Department; and both its entomologist and botanist, as will be seen from this report, are discharging this duty of the Department. But co-operation by all is also essential.

We have referred to the fact of having received no intelligence from the grape districts of Cincinnati. This has been done, not so much to complain of the remissness of our correspondents there, as to show that there is no union of action in the extensive and diversified horticulture of the United States. The grape rot is still a mystery. Opinions as to the cause are abundant, but true progress towards its explanation and cure depends on a systematic observation of all the conditions of atmosphere and soil and cultivation attendant on its coming, its action, and cessation, in every prominent locality where the grape is grown.

Local natural evils must be viewed through the telescope, and not through the microscope. As in astronomy there are numerous observers in every part of the world constantly in communication with each other, so there must be like observers and correspondence over the world of American agriculture and horticulture. This Department should be the centre of these observations and correspondence.

The grape rot will illustrate the practical bearings of these remarks. It does not exist in California; it has a partial existence in Europe; it is fatal in most parts of the Atlantic States. Why this difference? Clearly because there is a difference of climate, for like soils are common to all. In what does this difference consist is the first inquiry, because it is the true starting point in the investigation of the causes of the rot. And this is a much more comprehensive one, needing the aid of many observers, than a local investigation of local phenomena.

The following table of the fall of rain embraces much of this difference of climate. It is prepared, partly from the meteorological tables of Mr. Blodget, and partly from those of the Smithsonian Institution:

AMERICAN PACIFIC CLIMATES.

Inches of rain.

	Spring.	Summer	Autumn	Winter.	Total.
<i>California.</i>					
Sacramento	3.3	0.1	3.2	6.9	13.5
San Francisco	4.6	0.7	3.7	8.8	17.8
Los Angeles	2.5	0.1	1.6	5.5	9.7
<i>New Mexico.</i>					
El Paso	0.6	6.6	4.9	0.3	12.4
Albuquerque	0.6	5.6	1.2	1.0	8.4

AMERICAN ATLANTIC CLIMATES.

Inches of rain.

	Spring.	Summer.	Autumn.	Winter.	Total.
Cincinnati	11.9	14.2	10.0	11.3	47.5
Cleveland	9.1	11.6	9.8	6.9	27.4
Ann Arbor	7.3	11.2	7.0	3.1	28.6
Pittsburg	9.5	12.3	7.6	7.4	36.8
St. Louis	12.7	14.6	8.7	7.0	42.5
Nashville	14.1	14.0	12.3	12.4	52.8

EUROPEAN CLIMATES.

Inches of rain.

	Spring.	Summer.	Autumn.	Winter	Total.
Turin, Piedmont	8.2	9.0	11.5	7.8	36.5
Valley of the Rhone	10.2	9.5	10.4	4.3	34.4
Vevay, Switzerland	7.9	10.8	11.1	3.9	33.8
Manheim, Rhine	6.3	8.0	7.4	5.3	27.0
Bordeaux, West France	7.3	7.4	10.3	9.0	34.0
Dijon, East France	7.1	7.5	9.3	7.3	31.2
Chalons, Northeast France	5.4	6.2	6.1	5.6	23.3
Lisbon, Portugal ^o	-----	-----	-----	-----	-----
Funchal, Madeira ^o	-----	-----	-----	-----	-----
St. Michael's, Azores	6.6	3.6	9.5	11.7	31.4

^o Dry summers.

It needs but a glance at these tables to see their great differences, both in the summer fall of rain, and in the total amounts. It is the dryness of California that makes it a vine-growing country so free from the rot. How far its mountain ranges and their snow-covered tops aid this healthful influence of dryness has not yet been determined.

But *soils*, though alike in their composition, with different climates, are unlike in their effects, and should not be overlooked. Let us examine these, then, as they are in California, and, as applied to grape culture, to see whether in this, as in morals, or poetry, or painting, or music, a standard of excellence approaching perfection, may not aid those, struggling under adverse circumstances, towards a better state.

"The vine," says Mr. Hittel, in his recent excellent work on the Resources of California, "likes a sandy or gravelly (not very moist) soil, and never thrives in a wet, loamy, or stiff clay soil." "The soil of the vineyards of Los Angeles and Anaheim is a deep, light, warm sand; to the inexperienced eye looks as though too poor to produce any valuable vegetable growth. In Sonora and Napa valleys the vineyards are planted in a red, gravelly clay near the foot of the mountains, or in a light sandy loam in the centre of the valley. In all these soils the vines thrive. In Santa Clara valley most of the vines have been planted in a rich, black loam, but their vineyards are unhealthy." Here, then, are the following conditions: dry climate, sandy or gravelly and a poor soil, resulting in a grape free from the rot, and vines bearing double as much as in the Atlantic States or in Europe. How widely different they are from the conditions of the grape culture of the Atlantic States can be seen by all.

How far the evils here can be overcome by elevation, soil, and cultivation, or by new varieties of the grape, is the important problem; to solve which the botanist of the Department is giving much attention, but he should be aided by the systematic observation of others.

This Department has no purpose to accomplish, if the establishment of such systematic observation is not a part of it. But to do this it must put itself in communication with intelligent agriculturists and horticulturists everywhere, and they with it; it must counsel with them; their suggestions are to be received and considered; the observations of each are to be transmitted to the other, through the reports of this Department. Thus phenomena observed under every varying condition can be made known to all, so that with the accumulated observations each one may more intelligently act in reference to future experiments. It was from the log-books of vessels sailing in every sea that Maury deduced his practical sailing directions. An observed fact, when recorded, is never lost; but it is of no utility until all the facts, necessary to the development of a truth, are brought together. And how far restrictions cast around the correspondence of this Department, in the form of post office tariffs, is in accordance with the duties it should discharge, must be determined by Congress, which will never intentionally permit the interests of American agriculture to be made subservient to the financial condition of another department.

THE TABLES OF THE CONDITION OF THE CROPS FOR JULY.

Wheat and Barley.—These crops have been secured in excellent condition. Local injuries exist, but not to the usual extent. Their threshing is now being done, which will disclose some other injuries, but there is no doubt that these crops are the largest ever produced in the loyal States.

Oats.—This crop was greatly endangered by the drought of May and June. But the rains came in season, generally, to cause good heads; and although our table shows a great injury in Minnesota, where the drought has continued, and an injury of two-tenths in Ohio, Pennsylvania, and New Jersey, yet the general average is but two-thirds of a tenth below an average crop.

Corn.—This promises well. Although its appearance is two-tenths below an average in the great corn-producing States of Illinois, Indiana, and Iowa, yet the more general distribution of the rains, since the circulars were sent to this Department, will have some influence in mitigating this injury.

Tobacco.—The crop of tobacco is but one-tenth below the average of a good

crop. In Illinois and Iowa it has suffered from drought, being two-tenths below an average crop. The general injury is but five-sixths of one per cent.

Flax.—This product has been harvested, and is generally satisfactory. Its reported condition is about the same as that of tobacco.

Cotton.—This crop has not fared so well, it being injured by drought. The general injury amounts to two-tenths of an average crop, although it is double that in one State, and a little over it in Illinois. But its present appearance is favorable.

Sorghum.—In Illinois and Iowa the sorghum crop has suffered from that common enemy, drought. Its appearance in these States is two-tenths below an average. But the general average is only one-tenth below a good crop. Its great ability to endure drought gives assurance that it will recover from this, but its perfect maturity may be retarded.

The Hay Crop.—In the northern States the timothy meadows are mown twice; in the western, but once. The first cutting was a short crop, as seen from the June report. But the amount of clover hay is but one-tenth below an average, and the lately mown meadows have yielded well; but much of the hay in the eastern States was injured from the excess of rain. The amount of the hay crop is more favorable than reported last month, but its quality not so good. Hence it will still be advisable for farmers to secure as much corn fodder as they can.

Grapes.—The Cincinnati Horticultural Society, representing so large a part of the grape crop of the country, has overlooked its duty when it failed to report to this Department the condition of the crop. But we see it stated on the authority of one of its leading members that the rot has destroyed one-half the grapes in the vicinity of Cincinnati. Our correspondents from other points report its conditions as very favorable, and the general average in appearance is up to that of a good crop, and the injury but one-third of one-tenth of an average.

Apples.—This crop gives encouraging promise generally. It is but one-tenth below an average, but in some States it is much injured. In Maine, Massachusetts, and New Jersey, it is three-tenths below it; in Maryland, New Hampshire, Ohio, Pennsylvania, and Nebraska Territory, it is two-tenths below. In other States it is very promising.

Peaches.—In Ohio, Maryland, and Connecticut the peach crop is three-tenths below an average crop. In Iowa, Missouri, New Jersey, and Pennsylvania, two-tenths below. The general average is but one-tenth below. Altogether the present season may be placed in the lists as a "good peach year."

Strawberries and Raspberries.—The inquiries in regard to these were made with a view of ascertaining the extent of their general cultivation. It is gratifying to learn that these delicious small fruits are becoming appreciated everywhere. The injury to them from drought has been greater than usual. The average price of strawberries was fourteen cents per quart; of raspberries, eleven cents.

The Weather.—There is no subject that more quickly touches the farmer than this one. Favorable weather is his great delight; that about which he talks most; but when unfavorable, it spreads gloom over his waking hours. Here is a specimen of the anxious thought it causes. A correspondent from Indiana, where localities have suffered much from intense drought, after writing about the wretched prospect of crops with him, asks, "Would it be *impious* to attempt the control of the fall of rain? If the Smithsonian Institution would attempt it, I think there is enough known of the causes that produce rain to enable them to succeed, if they had the means at their disposal."

We can sympathize in all this. For often have we looked, day after day, with intense anxiety to every indication favorable for rain, whilst our crops were burning up under intense drought. There would be no more impiety in

controlling the fall of rain than in expanding water into steam, by heat, that it may be made a motive power. A loving Creator has given to man an intellect that can control the laws of nature for his own good; and no higher or more useful achievement could it perform than to condense, at will, the vast watery vapors that float above us in their transit from the equator to the poles. But this is yet beyond the reach of human learning; and great as is the science of the Smithsonian *savans*, their knowledge is totally inadequate to this. But such as it is, in full sympathy with the wants of the farmers, they will unfold it by degrees to them in these monthly reports. At present our efforts must be directed to mitigate the effects of drought by irrigation, deep ploughing, frequent cultivation, retaining the carbonaceous matter of the soil, and underdraining. On all these subjects much information can be found in the annual reports of this Department.

The "weather" in the July table presents quite a contrast with that in the June table. Then there was not a single "very wet" county, but now there are ninety-four. There were but sixteen "wet" then; now there are thirty-eight. Kansas had 5.91 inches of rain in June; in July it has but 2.31 inches. Minnesota still suffers from drought. It had but 0.27 inches in June, and in July but 0.63.

The meteorology of these two months possesses a marked difference between the States east of the Alleghany mountains and those west. Illinois, Indiana, Iowa, and Ohio exhibit many "very dry" counties during July, whilst Connecticut, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Vermont show many "very wet," and "favorable." The fall of rain, as indicated by its measurement, sustains the returns of our farmer correspondents. But the general average of 5.02 inches exhibits a remarkable month, for July is generally a month of drought. It makes good our remark in the report for June, that we "had assurance there would be no July drought."

Table showing the condition of the crops for the month of July.

STATE.	WINTER WHEAT.	SPRING WHEAT.	BARLEY.	OATS.	CORN.		TOBACCO		FLAX.		COTTON.		WOOL.	SORGHUM.		GRASS & CLOVER.		
	Injury from rust, fly, or other causes.	Injury from rust, fly, or other causes.	Injury from drought or other cause.	Appearance of crop in July.	Injury from rust or other cause.	Appearance of crop in July.	Injury from drought or other cause.	Appearance of crop in July.	Injury from drought or other cause.	Appearance of crop in July.	Injury from drought or other cause.	Appearance of crop in July.	Average market price for it this month.	Appearance of crop in July.	Injury from drought or other cause.	Appearance of timothy meadows in July.	Estimated amount of clover hay, compared with that of 1862.	
Connecticut.....	9	1	9	1	10	.....	9	.....	.....	\$0 74	9	.....	9	.....	10
Delaware.....	8	.....	8	.....	.....	62½	8	.....	8	.....	9
Illinois.....	9	1	8	1	10	.....	9	.....	.....	55	9	.....	9	.....	9
Indiana.....	10	.....	8	.....	10	.....	9	.....	.....	55	9	.....	9	.....	7
Iowa.....	9	.....	8	.....	8	.....	9	.....	.....	55	8	.....	6	.....	9
Kansas.....	11	0	13	0	8	.....	10	.....	.....	47	11	0	12	.....	14
Kentucky.....	10	2	10	.....	10	.....	8	.....	.....	43	9	2-5	9	.....	9
Maine.....	10	.....	9	1	10	.....	10	.....	.....	65½	.....	.....	9	.....	10
Maryland.....	6	.....	9	.....	9	.....	8	.....	.....	55	8	1-5	9	.....	9
Massachusetts.....	10	.....	9	.....	9	.....	10	.....	.....	65	.....	.....	9	.....	9
Michigan.....	10	.....	10	.....	9	.....	9	.....	.....	59	9	1-5	9	.....	9
Minnesota.....	10	.....	7	.....	7	.....	9	.....	.....	55	8	.....	7	.....	9
Missouri.....	7	.....	9	2	9	.....	9	.....	.....	42	8	.....	8	.....	10
New Hampshire.....	9	.....	11	.....	10	.....	11	.....	.....	68	.....	.....	10	.....	10
New Jersey.....	8	.....	10	.....	10	.....	9	.....	.....	66	10	.....	9	.....	9
New York.....	10	.....	10	.....	10	.....	10	.....	.....	61	10	.....	10	.....	10
Ohio.....	8	.....	11	.....	9	.....	9	.....	.....	64½	9	.....	7	.....	8
Pennsylvania.....	10	.....	10	.....	9	.....	9	.....	.....	62	9	.....	8	.....	8
Rhode Island.....	9	.....	10	.....	10	.....	9	.....	.....	66½	.....	.....	9	.....	9
Tennessee.....	9	.....	11	.....	10	.....	10	.....	.....	64	.....	.....	11	.....	9
Vermont.....	11	.....	9	1	10	.....	9	.....	.....	57	9	.....	9	.....	10
Wisconsin.....	10	.....	12	.....	10	.....	10	.....	.....	35	10	.....	10	.....	10
Nebraska Territory.....	11	.....	.....	.....	10	.....	10	.....	.....	58	9	1	8	.....	9
General average.....	4-5	1	1	9½	1	9½	1	9	5-6	9	½	9	2	58	9	1	8	9

Table showing the condition of the crops for the month of July—Continued.

STATE.	POTATOES.		GRAPES.		STRAWBERRIES.		RASPBERRIES.		APPLES.		PEACHES.		WEATHER.				
	Amount planted compared with 1862.	Injury from potato bug or other cause.	Appearance of crop in July.	Injury from rot or other cause.	Average selling price per quart this season.	Injury from drought or other cause.	Average selling price per quart this season.	Appearance of fruit in July.	Injury to fruit or trees.	Appearance of fruit in July.	Injury to fruit or trees.	Favorable.	Dry.	Very dry.	Wet.	Very wet.	Inches of rain.
Connecticut	9	...	9	+	\$0 14	...	\$0 12	8	1	7	+	0	0	0	0	6	11.46
Delaware	...	1	10	+	12	1	13	10	...	11	...	24	12	32	1	0	3.16
Illinois	11	1	9	+	12	1	11	9	...	10	...	13	6	12	1	0	3.71
Indiana	11	1	10	+	15	1	11	10	...	8	1-5	18	7	92	7	5	3.82
Iowa	10	2	10	+	2	...	25	12	...	9	1	9	0	0	6	3	0.11
Kansas	14	0	9	2-5	...	2	11	12	...	10	1-5	4	1	2	0	0	...
Kentucky	10	0	9	...	...	...	12	11	...	10	...	9	0	0	0	9	6.95
Maine	11	...	9	...	11	...	9	7	...	...	...	2	0	0	2	9	...
Maryland	10	1	10	...	11	...	10	10	...	7	...	2	0	0	4	1	8.05
Massachusetts	10	1	10	...	20	1-5	18	7	...	9	...	2	0	0	0	9	9.76
Michigan	10	2	11	...	10	...	16	10	...	11	...	24	2	3	0	1	2.83
Minnesota	10	...	9	...	17	2	12	10	...	...	...	6	0	14	0	1	0.63
Missouri	11	1	10	3	11	2	16	11	...	8	...	2	0	3	0	1	0.77
New Hampshire	10	...	10	2	11	...	12	8	...	10	...	0	0	0	0	6	7.77
New Jersey	11	...	9	1	14	...	12	11	...	8	1	...	0	0	0	2	5.97
New York	11	...	11	...	11	...	11	9	...	9	...	1	14	5	0	7	5.69
Ohio	10	1	10	+	1	...	9	9	...	9	...	15	9	17	2	2	2.72
Pennsylvania	10	1-5	10	+	12	1	11	8	...	7	...	13	1	8	7	15	6.20
Rhode Island	10	...	10	+	21	...	12	10	...	...	...	12	0	0	0	4	9.42
South Carolina	10	...	10	+	...	...	10	8	...	...	...	0	0	0	0	2	7.77
Vermont	10	1-5	10	+	12	1	11	10	...	11	...	14	6	6	2	3	2.40
Wisconsin	10	1	11	+	...	...	11	8	...	...	...	...	...	...	...	...	2.25
Nebraska Territory	12	...	10	...	20	...	...	8	...	...	...	...	...	...	...	...	...
General average	10	+	10	+	14	4-5	11	9	3-5	9	7-10	153	49	119	3	94	5.02

NOTE.—In the above table the injury to the crops is represented directly. The average crop being 10, an injury of one tenth was expressed in the former tables by $\frac{9}{10}$, being one-tenth less than the average. In this table the injury is expressed more directly by the figure 1. $\frac{1}{10}$ means one half of one-tenth. This change is made because the injuries were so small in most cases as to be but fractional parts of one-tenth, and they could be more quickly understood by this direct statement of them. Hereafter the injuries will always be so expressed.

INFORMATION TO CORRESPONDENTS ON SPECIAL SUBJECTS.

The farming lands lying within the scope of the Department of Agriculture, covering the half of a continent, present a diversity of climate and soil not elsewhere found in any one country, and giving rise to an infinity of suggestions and inquiries. From some portion of this vast country letters are daily received requesting from the Department information running through the whole range of agricultural learning, from the agriculture of a State to the cause of the destruction of a leaf, and from the pedigree of some herd of noble animals down to the smallest aphid that sucks the plant-life out.

That these matters may be understood by all, and that the information sought by one may benefit all, it is the intention of the Commissioner to give, in the monthly reports, material that shall serve as a general reply to intelligent questioners. And among the subjects to which attention has been repeatedly called, both by letters and in the return to our circulars, is that of mildew on the grape.

It is now very generally recognized that mildew is the greatest enemy the grape culturist has to contend against, and the question of profit or loss in the wine-grower's account depends materially upon the absence or presence of this disease. Notwithstanding the importance of the subject, it is somewhat remarkable that but little is known with regard to its origin. True, opinions are plentiful, but so widely varied and conflicting that they tend to mystify rather than throw light upon the origin of the malady.

In a letter recently received from an old, experienced grape-grower, it is observed that mildew never appears until the temperature rises to 85° or 90°; others attribute its appearance to heavy rains on undrained soils; again, it is seen on dry grounds in dry weather; and some hold the opinion that the mode of pruning will determine whether or not the disease will be prevalent. It is thus obvious that pomologists have not as yet come to any settled opinion with reference to the origin of mildew, and the subject is here briefly noticed with a view to direct especial attention to the atmospheric phenomena attendant upon its appearance, as well as to the condition of the soil, and accompanying peculiarities of cultivation.

It is well known that some varieties of grapes are more liable to mildew than others; the grouping of such as are exempt, or partially so, would also be of great importance in the future improvement of this fruit. There is certainly no subject connected with wine culture in this country of more importance than the disease here noticed.

The Department is assiduously collecting all noted varieties of the grape, for the purpose of comparing their merits under similar conditions of climate, soil, and culture, and solicits the co-operation of all who are interested in the culture of this fruit. Plants of new or valuable varieties will be particularly acceptable; these are not desired for purposes of propagation; the Department will be guided in that matter by the donor, and all instructions, so far as propagation is concerned, will be rigidly enforced.

It may be remarked that no better criterion of a new fruit need be desired than the opportunity of comparing it side by side with the extensive collection of the Department will present.

These remarks are deemed necessary in order that the intentions of the Department may be fully understood by grape-growers and others interested.

INJURIES BY INSECTS.

As it is the intention of the Department of Agriculture to commence a series of observations and notes on the various insects injurious to vegetation, which

are sent almost daily to this office by the farmers, from the various States of the Union, for examination and description, and as several of the letters accompanying these insects contain sound practical information as to the best methods already practiced by the writers for their extermination or for preventing or lessening the destruction of their crops caused by their ravages, it may be well to make known to the public, through the pages of this monthly report, the results of such experiments as have already been made, and to suggest others which may perhaps aid the agriculturist in diminishing the number of the insect foes which are at present destroying his crops, trees, fruits, and vegetables. As it is not to be expected that every farmer should be an entomologist and know the scientific name for every different part of an insect, it may be necessary, in the first place, to give a brief description of what an insect is, and to explain the various transformations it has to undergo before attaining the winged or perfect state. Moreover, as these papers are intended for the practical farmers alone, who have had neither time nor opportunity to study Latin and Greek derivations, and not for the scientific naturalist, the use of scientific terms, which would only confuse, will be carefully avoided as much as possible, excepting, of course, the names of the insects themselves, many of which have no English name whatever, or, if they have, are known by different local names in almost every State in which they may be found. For example, take the grain weevil: in some States it is understood to signify the wheat midge—a two-winged fly infesting the heads of growing grain; it is also sometimes applied to the small moth or miller which is found in grain when stored, whilst in other places it means the small blackish brown hard-winged beetle so common in grain that has been kept some time in sacks or bins—the last-named insect being the only true weevil; whereas the scientific name, although very difficult to be learned at first, is the same throughout the whole civilized world. Besides this, the same remedies could not be used with any success, for the reason that all these three insects belong to different orders, have different habits, and only two of them are found in the same situations. The word insect is derived from two Latin words, signifying “cut into,” as all insects are divided into several segments or rings, and their bodies are separated or cut into three distinct parts, namely: the first part, or head, which is furnished with eyes, a mouth consisting of either jaws for biting, or a proboscis for sucking or piercing, and two articulated or jointed horns called antennæ; the second part, or middle portion of the body, is commonly known by the name of “thorax,” and bears six legs and generally either one or two pairs of wings; the third part, or hinder portion of the body, is called the abdomen. True insects never have more than six legs, and undergo three transformations after leaving the egg. The first stage is when the insect appears in the grub, caterpillar, or maggot state; it then feeds voraciously upon vegetable and animal substances, and the outer skin is shed several times before attaining its full size. This first stage of insect life we shall, for the sake of brevity, call larva, as this term, signifying a mask, can be used indiscriminately for either the grub, caterpillar, or maggot. The second stage is when the larva sheds its skin the last time and assumes the pupa or chrysalis state, when it remains for a longer or shorter period of time inactive, almost motionless, and does not take any food whatsoever; this is the case with beetles, bees, butterflies, and flies. This state we shall call pupa. Finally, the pupa skin is burst open by the insect within, and the perfect winged butterfly or beetle makes its appearance to pair and deposit eggs for another generation. This is the last stage of an insect’s life, as after laying the eggs it becomes enfeebled, and dies.

Grasshoppers, plant-bugs, and dragon flies, or mosquito hawks, although they also undergo these three transformations or changes, are active and feed in all the stages of their existence as larva, pupa, and imago or perfect insect. The life of a common grasshopper may serve as our example. An old female having deposited her egg in the earth, where it is hatched by the heat of the sun, the young when just emerged from the egg presents much the same appearance as

the full-grown grasshopper, with the exception of possessing no wings whatsoever. It has the legs, antennæ, and jaws, very similar to the old grasshopper, and hops about destroying vegetable substances in the same manner. In the pupa state the rudimentary or imperfect wings make their appearance sheathed in short cases on the back or sides. The insect in this stage also is active and eats voraciously, but it is only in the perfect state that the insect possesses true wings, and is able to fly about to propagate its kind. The farmer little thinks that the green and black striped caterpillar which is found so plentifully in his vegetable garden upon parsnips, celery, and parsley, during the summer and autumn, is produced by the beautiful black and yellow banded, swallow-tailed butterfly which may be seen early in spring and summer hovering over his flower beds, or that by destroying the impregnated females of these butterflies early in the season, before they have deposited their eggs, he might probably save his celery and parsnips without having the trouble of picking each caterpillar singly from his plants. As an experiment, let the farmer merely put some of these caterpillars, when nearly fully grown, into a box or glass, containing some of the leaves of the plant upon which the caterpillars were found, taking care to supply fresh food daily, and he will have the pleasure of witnessing all the transformations already spoken of. Every farmer keeps a cat to destroy the mice in his storehouses, and a dog to kill the vermin on his farm, yet he allows the small insect-eating birds to be shot and destroyed indiscriminately, although they are of the greatest utility in destroying thousands of noxious insects early in the spring (before the fruit is ripe) when they make their first appearance, and when each insect, if left undisturbed, would deposit the eggs which produce the myriads of grubs and caterpillars in the summer and autumn that destroy his fruit and vegetables. A pair of wrens or mocking birds in a garden destroy thousands of noxious insects, and, moreover, cost nothing for their food. It is true that several birds eat our fruits, yet they more than repay us for the few cherries or currants they may have taken, by exterminating the insects themselves which, if not thus killed, would have laid eggs more than sufficient to produce a swarm of grubs that would have destroyed even the trees. Toads feed almost entirely upon insects, and are constantly busy during the evening and morning, or in damp weather, hunting for their insect prey; so that, instead of being abused and condemned to death as disagreeable pests and nuisances, they ought to be protected as benefactors and considered in the true light as one of the instruments or means used by Divine Providence to check the too rapid increase of the insect tribes; which, if undisturbed, would soon multiply to such a degree as to destroy all vegetation. Let the farmer merely once observe a toad closely when it is hopping or crawling about in the evening twilight, and he will soon be convinced by seeing it dart out its viscid tongue at every passing insect; or, if not yet satisfied about its utility, let him kill a toad early in the morning, after a good night's feed, and if cut open, the stomach will be found completely filled with insects, some partly digested, whilst others more recently caught are in a perfectly uninjured state; nay, some of them so fresh as to be fit to be placed in a cabinet as specimens. All insects, however, are not noxious; some are even beneficial and useful to the farmer by destroying the insects which injure his crops. Hence it would be well for the agriculturist to be naturalist sufficient to be able to discriminate between friends and foes, or the insects that benefit him by destroying injurious insects, and the injurious insects themselves; and in these papers we shall endeavor, when describing the habits of each noxious insect, to point out the parasite or other insect which destroys it. We will merely take as an example the small round red beetle, spotted more or less with black, commonly known to farmers as the lady-bug. This is useful in the highest degree in both the larva and perfect state, as its food consists entirely of other insects exceedingly injurious to vegetation; one yellow species, spotted with black, alone being injurious to squashes, pumpkins, &c., on which plants it is to be found abundantly. But more of this hereafter.

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of July, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this July compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for July, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND RAIN OF JULY, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornishville	York.....	G. W. Guptill	7	88	14, 23	58	70.3	7.50
Steuben	Washington	J. D. Parker	6	80	14	52	69.0	7.10
Foxcroft	Piscataquis	W. M. Pitman	7	88	14	51	67.3	6.24
Gardiner	Kennebec	R. H. Gardiner	29	90	14, 15, 23	59	75.9	6.45
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	7	88	23	51	67.0	8.98
Claremont	Sullivan	Arthur Chase	1, 2, 7	88	21	58	71.0	6.56
VERMONT.								
Brandon	Rutland	David Buckland	2	91	17, 18, 22	58	71.9	10.12
Craftsbury	Orleans	James A. Paddock	7	86	23	51	66.2	6.60
Lunenburg	Essex	Hiram A. Cutting	1, 2	92	22	53	70.3	8.60
Burlington	Chittenden	McK. Petty	7	82	18	55	68.3	5.76
MASSACHUSETTS.								
Williamstown	Berkshire	Albert Hopkins	7	83½	22, 23	58	69.1	9.87
Topsfield	Essex	John H. Caldwell	8	90	10	60	70.3	15.68
New Bedford	Bristol	Samuel Rodman	26	83	10, 22	62	71.3	4.05
Mendon	Worcester	Jno. George Metcalf	28	88	10	61	71.6	12.00
Amherst	Hampshire	Prof. E. S. Snell	27	85½	23	55	70.9	8.64
Westfield	Hampden	Rev. Emerson Davis	27	85	22, 23, 24	58	71.7	10.31
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell	8, 26	85	1, 24	57	69.6	9.42
CONNECTICUT.								
Pomfret	Windham	Rev. Daniel Hunt	7	81	24	59	69.0	11.79
Middletown	Middlesex	John Johnston	7	87	23	60½	71.8	11.14

Temperature and rain of July, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Meun.	Rain.
NEW YORK.								
Gouverneur	St. Lawrence.....	C. H. Russell.....	7	87	17	50	69.5	2.84
Fishkill Landing.....	Dutchess.....	W. H. Denning.....	27	89	18	60	70.6	9.11
Wampsville.....	Madison.....	S. Spooner, M.D. ..	2	90	16, 17, 22, 23	60	71.6	8.88
Oswego.....	Oswego.....	Wm. S. Malcolm ..	1	82	17	56	69.1	4.35
Deaf and Dumb Asy.	New York City.....	Prof. O. W. Morris..	16, 27, 28	87	14, 22	67	77.5	8.60
Wilson.....	Niagara.....	Dr. E. S. Holmes.....	4	92	17	54	71.7	.....
Theresa.....	Jefferson.....	S. O. Gregory.....	7	87	17	50	71.5	1.28
Clinton.....	Oneida.....	H. M. Paine, M.D. ..	3	93	16	58	74.6	5.46
Rochester.....	Monroe.....	Dr. M. M. Mathews..	2	89	16, 17	58	76.9	5.03
Buffalo.....	Erie.....	William Ives.....	2, 7	93	16	54	70.6	4.37
Garrison's.....	Putnam.....	Thomas B. Arden.....	3, 9, 26	80	17, 18, 21	61	75.0	6.81
NEW JERSEY.								
Newark.....	Essex.....	W. A. Whitehead.....	.....	.....	22, 23	60	72.9	5.96
Progress.....	Burlington.....	Thos. J. Beans.....	3	96	17	68	78.8	5.99
PENNSYLVANIA.								
Philadelphia.....	Philadelphia.....	Pf. J. A. Kirkpatrick.	15	87	17, 18	69	77.0	5.69
Harrisburg.....	Dauphin.....	John Heiseley, M.D. .	25	89	17	64	77.1	13.58
Canonsburg.....	Washington.....	Rev. W. Smith, D.D. .	5, 8, 23, 29	84	18	52	70.6	3.10
Blairsville.....	Indiana.....	W. R. Boyers.....	8, 24, 27, 31	92	2, 12, 13 to 16	50	67.0	5.62
Susquehanna Depot.	Susquehanna.....	H. H. Atwater.....	3	100	17, 22	61	77.3	6.41
Fleming.....	Center.....	Samuel Brugger.....	11	92	21, 22	58	73.7	2.80
Mount Joy.....	Lancaster.....	J. R. Hoffer.....	25	99	17	63	.....	3.70
Tioga.....	Tioga.....	E. T. Bentley.....	11	96	22, 23	54	73.4	.....
MARYLAND.								
Sykesville.....	Carroll.....	Miss Harriott M. Baer.	25, 26	82	17	62	75.4	13.10
Chestertown.....	Kent.....	Prof. J. R. Dutton ..	28	89	18, 22	67	77.3	5.56
St. Mary's.....	St. Mary's.....	Rev. J. Stephenson ..	11	86	17	66	77.5	5.49
DIST. OF COLUMBIA.								
Smithsonian Inst....	Washington.....	.....	3	88	22	63½	76.4	8.37
OHIO.								
Westerville.....	Franklin.....	Prof. Jno. Haywood..	3	92	17	52	72.9	1.45
Urbana University..	Champaign.....	Prof. M. G. Williams.	3, 24	92	16	56	74.0	2.10
Welshfield.....	Geauga.....	B. F. Abell, A. M. ...	1, 3	90	16	52	71.1	2.47
Portsmouth.....	Sciota.....	L. Englebrecht.....	2	89	17	59	75.6	4.05
New Lisbon.....	Columbiana.....	J. F. Benner.....	3	96	17	52	72.9	2.15
Kelley's Island.....	Erie.....	Geo. C. Huntington..	3	88	16	56	71.4	1.43
Cleveland.....	Cuyahoga.....	G. A. Hyde.....	3	84	17	57	72.2	1.65
Cincinnati.....	Hamilton.....	Geo. W. Harper.....	2, 24	96	17	61	77.4	3.21
Bowling Green.....	Wood.....	W. R. Peck, M.D.	1	88	16	52	70.6	2.75
Newark.....	Licking.....	J. Dill.....	24	97	17	46	74.9	2.18
Austintburg.....	Ashtabula.....	J. G. Dole and C. L. L. Griffing.....	1, 3	89	17, 18	52	69.7	6.00
Toledo.....	Lucas.....	J. B. Trembly M.D. .	2	93	18	51	74.5	3.44
MICHIGAN.								
Monroe.....	Monroe.....	Flor. E. Whelpley ..	6	91	15, 16	50	71.0	1.42
Marquette.....	Marquette.....	Frank M. Bacon.....	7	83	15	44	60.3	4.24

Temperature and rain of July, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
INDIANA.								
New Albany.....	Floyd.....	Dr. E. S. Crozier...	1, 2, 3, 4	91	17	58	76.1	2.32
South Bend.....	St. Joseph.....	Reuben Burroughs..	8	91	15	50	69.8	5.37
Rockville.....	Park.....	Miss M. A. Anderson.	9	90	15, 16	57	73.4	4.13
New Harmony.....	Posey.....	Jno. Chappellsmith..	3	91	16, 17	60	75.7	3.02
New Castle.....	Henry.....	T. B. Redding.....	3	95	16	39	73.8	.....
ILLINOIS.								
Peoria.....	Peoria.....	Frederick Brendel..	4, 23	93	16	53	75.4	4.82
Galesburg.....	Knox.....	Rev. W. Livingston..	31	92	12	53	71.8	1.48
Manchester.....	Scott.....	Dr. John Grant and Miss E. Grant....	9	95	12	54	72.7	3.73
Augusta.....	Hancock.....	S. B. Mead.....	8	93	16	53	72.9	2.62
Pekin.....	Tazewell.....	J. H. Riblett.....	3, 8	94	14	51	72.4	3.30
Chicago.....	Cook.....	Samuel Brookes.....	1	94	15	54	69.2	.....
Waverley.....	Morgan.....	Timothy Dudley....	9	96	16	50	73.8	7.39
MISSOURI.								
Canton.....	Lewis.....	George P. Ray.....	2, 31	102	15	55	75.8	0.77
Harrisonville.....	Cass.....	John Christian.....	10	100	16	58	78.0	.....
WISCONSIN.								
Milwaukee.....	Milwaukee.....	J. A. Lapham.....	.....	.....	.....	.....	.....	2.40
Milwaukee.....	Milwaukee.....	Carl Winkler.....	31	90	15	51	67.7	.....
Weyauwega.....	Waupaca.....	W. Woods.....	7	96	15, 16, 17	49	69.4	.....
IOWA.								
Lyons.....	Clinton.....	P. J. Farnsworth, M.D.....	8	98	15	55	72.2	5.55
Dubuque.....	Dubuque.....	Asa Horr, M.D.....	8	92	12, 16	53	71.8	3.92
Algona.....	Kossuth.....	F. McCoy, M.D., and Miss L. McCoy....	8	96	15	51	72.1	1.59
Fort Madison.....	Lee.....	Daniel McCready....	4, 5	95	13, 15, 16	53	74.3	1.71
Independence.....	Buchanan.....	A. C. Wheaton.....	4	101	15	48	73.3	6.40
Pleasant Plain.....	Jefferson.....	T. McConnel.....	5	104	15	56	77.1	0.50
Muscataine.....	Muscataine.....	Suel Foster.....	31	94	12	50	.....	.....
MINNESOTA.								
St. Paul.....	Ramsey.....	A. B. Patieson.....	6	91	14, 15	48	68.5	0.63
NEBRASKA.								
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton..	30	86	13	54	71.0	2.25
Elkhorn.....	Washington.....	Miss A. M. J. Bowen.	9, 10	96	16	56	72.6	.....
KANSAS.								
Lawrence.....	Douglas.....	Arthur N. Fuller....	10	100	15, 16	60	76.5	0.11
Manhattan.....	Riley.....	H. L. Dennison.....	2, 9	92	15, 16	58	76.1	4.54

The following table shows the average temperature and average fall of rain in the different States during the month of July for the years named. No reports for this year were received from two of the States.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for the 5 years.		Averages for 1863.	
		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.	
		ther.	rain.	ther.	rain.	ther.	rain.	ther.	rain.	ther.	rain.	ther.	rain.	ther.	rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	6	67.9	2.6	69.3	4.4	67.2	3.6	65.7	6.6	67.3	2.4	67.5	3.9	69.7	6.82
New Hampshire	4	71.8	4.7	71.4	2.5	71.5	4.3	67.5	4.1	65.9	3.5	69.6	3.4	69.2	7.77
Vermont	4	69.6	6.2	71.2	3.1	70.7	5.0	67.8	4.9	66.5	1.6	69.1	4.2	69.2	7.77
Massachusetts	12	71.4	5.8	71.3	2.6	70.2	4.7	69.2	4.5	68.7	2.1	70.2	3.9	70.8	9.43
Rhode Island	1	72.9	3.25	72.1	4.20	69.9	3.45	69.8	4.90	69.2	1.14	70.7	3.65	69.6	9.42
Connecticut	4	71.8	5.8	72.7	2.7	69.7	6.8	69.5	3.5	68.1	2.0	70.4	4.2	70.4	11.16
New York	18	72.1	4.8	73.3	2.9	72.0	4.1	71.9	4.6	69.2	3.3	71.7	4.0	72.2	5.67
New Jersey	4	76.2	4.5	77.2	1.4	73.0	6.1	74.4	3.4	72.0	4.0	74.6	4.0	75.8	5.97
Pennsylvania	20	76.4	5.8	76.7	2.1	70.2	3.6	76.1	3.1	73.4	2.8	74.5	3.5	73.6	5.99
Maryland	5	77.0	3.2	78.9	3.6	74.3	4.4	77.2	3.0	74.5	2.5	76.4	3.3	76.7	8.05
District of Columbia ..	1	79.0	4.1	79.1	3.9	74.7	5.4	78.3	5.0	76.1	1.6	77.4	4.0	76.4	8.37
Kentucky	4	78.1	3.0	79.4	2.4	73.6	4.7	78.5	5.0	78.2	2.3	77.5	3.4	.....	.....
Ohio	18	74.7	5.8	76.0	2.7	74.5	4.9	75.9	5.0	74.4	1.6	75.1	3.9	73.3	3.20
Michigan	8	76.1	8.8	72.3	2.3	71.6	2.9	72.9	2.3	70.7	1.8	72.7	3.6	65.6	2.83
Indiana	4	77.7	7.0	79.3	2.2	74.2	2.8	77.4	3.1	77.8	1.9	77.3	3.4	73.8	3.94
Illinois	13	76.3	6.2	77.3	3.6	76.3	2.1	75.3	5.9	75.8	1.7	76.2	3.9	72.6	3.87
Missouri	2	79.6	5.2	81.6	4.9	76.8	3.3	82.2	2.9	78.9	5.5	79.8	4.4	76.9	1.64
Wisconsin	9	72.0	3.7	68.3	2.6	67.1	2.4	70.9	5.3	73.0	2.2	70.3	3.2	68.6	2.65
Iowa	8	74.3	4.8	75.6	3.8	63.6	2.9	73.9	8.3	75.7	4.3	72.6	4.8	72.5	3.44
Minnesota	3	70.2	.....	72.8	2.7	76.3	1.0	68.7	8.8	70.0	4.2	71.6	4.2	68.5	0.63
Nebraska Territory	2	.....	.....	.....	.....	76.7	1.7	76.8	15.8	77.7	1.8	77.1	6.4	71.8	2.25
Kansas	4	.....	.....	.....	.....	81.2	3.2	80.6	6.0	80.6	3.7	80.8	4.3	76.3	2.33
California	2	.....	.....	73.5	0.1	60.7	0.0	69.4	0.0	66.9	1.3	67.6	0.3	.....	.....

TEMPERATURE OF JULY.

As a whole, the earth receives less heat from the sun in July than in any other month of the year. Our planet does not revolve around the sun in a circular, but in an elliptical or elongated orbit, and therefore is nearer the central luminary at one season of the year than another. At the present time—that is, near the middle of the 19th century—the earth is nearest the sun on the 1st of January, and furthest from it on the fourth of July; or, in other words, the whole earth receives the greatest amount of heat from the sun on New Year's day, and the least on the anniversary of our national independence.

This condition of affairs is not permanent, but is constantly, though very slowly, changing. In about ten thousand years the earth will be nearest the sun in July, and furthest from it in January. This will very much increase the intensity of the heat of the northern summer and the cold of the northern winter. The cause above mentioned is, however, too slow in its operations to have produced any very appreciable effect during our historic period, although in the long geological ages it probably assisted in producing the changes of climate, which are proved from the remains of plants and animals to have taken place on different parts of the earth's surface.

What we have said relates to the heat received from the sun by the whole earth, and not to the heat of any place in different seasons of the year. The

latter, as every one knows, depends principally upon the higher or lower position of the sun above the horizon at 12 o'clock. Now, in the United States the sun is highest on the 21st of June, and lowest on the 21st of December; and hence, at first sight, we might suppose that the 21st of June ought to be the warmest day, and the 21st of December the coldest. Although the intensity of the sun's rays at any place in the United States, irrespective of the temperature of the surrounding atmosphere, is greatest on the 21st of June, yet the warmest weather, on an average, occurs several weeks later.

This fact, so familiar to every one, is perhaps not generally as well understood as it might be. Its explanation depends upon the principle that every body while receiving heat is also at the same time giving off heat. If the body receives more heat in a stated time than it gives off, it will be growing warmer; if the converse, it will be growing colder; and if the amount given off is just equal to that received, the body will be stationary in temperature. Now, the northern portion of the earth in autumn and winter gives off more heat than it receives, and consequently cools down; while in spring and summer, as the sun increases in altitude the heat received exceeds that given off, and the temperature continues to increase even after the sun has attained its greatest altitude: for although the intensity of the rays diminishes daily after this point has been reached, they still give more heat to the ground than it loses by radiation, and it is not until some weeks after that the two become equal and the highest temperature is produced.

A similar explanation is given of the fact that the greatest heat of the day is not at twelve o'clock, but some hours afterwards.

Though the temperature of the different months of the year, at a given place, depends mainly on the position of the sun in the heavens, there are other causes which affect the result, particularly the wind, which transfers the temperature of the south to the north, or conversely. From an average of a number of years it is found that the warmest month over almost the whole of the United States is July. There is, however, a remarkable exception to this rule in the lower part of western Texas. Over a circumscribed district of this part of our country the warmest month is August. A few places in Maine also present the same anomaly.

Temperature.—By the tables in the preceding number of this publication it appears that the temperature for May was higher in nearly all the States than the average for that month during the five years from 1855 to 1859, inclusive, and that in June it was lower in every State in which the comparison was made except one. In July, especially in the western States, the temperature was rather below the average. As all the stations at which the observations were made from which the means for the several States were drawn are not the same in the different years, the comparison is only an approximate one, but the general result as to whether the temperature of the present season is higher or lower than the average is probably correctly represented.

The observer at Westfield, Massachusetts, remarks that the average for July was higher than it has been there for nine years. Mr. Whitehead, who has kept a meteorological record at Newark, New Jersey, for many years, states that the past July was one of four only in twenty-one years in which the mercury did not rise above 90°, and during the whole period there was not one whose maximum temperature was not higher, and that its mean temperature was below the average of the month for the same period, only nine Julys being colder.

At Gardiner, Maine, according to the record of Mr. R. H. Gardiner, last July was more than a degree and a half lower than the average for the past twenty-seven years.

About the middle of the month an extensive frost prevailed in the western and northwestern States, sufficiently severe in low situations to injure corn, sorghum, and tomatoes.

MONTHLY REPORT

OF THE

CONDITION OF THE CROPS.

FOR AUGUST, 1863.

DEPARTMENT OF AGRICULTURE,

Washington, September 10, 1863.

The Commissioner of Agriculture again tenders to his regular correspondents his grateful acknowledgments for their promptness in replying to his circular for August. Their increased numbers and carefully prepared returns give the best assurance of the ultimate complete success of the plan adopted to collect reliable monthly accounts of the condition of the crops.

Despite the local injuries to the fall crops from drought, corn, tobacco, sorghum, and buckwheat would have been excellent had not the frost of August 30th occurred. As nearly all the returns of correspondents were made from the 28th of August to the 1st of September, the injury by frost was not given by them, as will be seen in the tables, but many held back their returns for a few days to report it. These last accounts present a general average injury of about one-third or 33 per cent; but, for reasons given at some length in the body of this report, it is believed that this is a great overestimate. Although so general a frost is ordinarily very destructive, yet there is a great difference between frosts occasioned by the fall of cold rains when the ground has been cooled, and those produced by a storm bringing the cold of the arctic regions over heated soil, and into a warm atmosphere. But to better ascertain the extent of the injury, inquiries have been made in the September circular relative to the condition of all the fall crops.

The state of the crops in Europe, especially in England, continues favorable, and indicates a lessened exportation of breadstuffs from this country. But a particular account of it will be given in the next Monthly Report, when more full information will have been received.

Since the last report many agricultural societies have forwarded to the Department the list of their officers, &c., but there are still many of them which have officers, and are unreported. It is very important, for the interests of the societies and for the Department, that the list be immediately sent. In answer to numerous interrogatories, there will be found in this report short articles on the manufacture of sorghum sugar and molasses, and on mildew and some of the injurious insects.

ISAAC NEWTON, *Commissioner.*

AUGUST REPORT ON THE CONDITION OF THE CROPS.

Different modes of reporting the crops.—It was our purpose to throw some light on the controversy among certain papers about the condition of the crops: some being positive that the general crop was most excellent; others that it was much below an average. But the late frosts have rendered this unnecessary, further than to say that as the crops are, in the section where the papers are located, so are the views of each paper. This is natural; for until we can fully realize the vastness of our country and the character of its climate—deluged with rain in one section, and parched with drought in another; the hay crop injured by daily showers in one part of a State, and the corn blades wilting in another; in one part of a county favorable weather, in another scarcely a shower—until these peculiarities are justly appreciated, opinions will take their coloring from the condition of the crops near home. Then, again, good crops are passed by without much comment; but the bad are the subject of much complaint. A person unacquainted with farming takes a railroad trip through two or three States, travelling night and day, dashing by cornfields with a velocity that sets every stalk in the most fantastic whirling around uncertain centres, fences appearing most contemptibly low, and a wheat field appearing thick or thin as the cars may be on or above a level with the grain, and reports to the papers, as he has to this Department, that the crops are good or bad, and gravely assures us that correspondents in every county, who see crops from horseback, and learn their condition from the most reliable, because best informed, sources, are mistaken.

If such opinions could have any approximation to correctness, it would be a useless labor to make the extensive inquiries that are made by this Department, or for it carefully to examine every return to learn whether a correspondent fully understands the nature of the questions asked, and whether he has answered each one according to the manner laid down in the directions, or for it to collate the returns of counties, that the general condition of each State may be shown, together with the climatic conditions of each for each month, or, as given in this report, for each week. It was Curran who said that truth is slow and painful in its progress; but that error was flippant and compendious, hopping over facts, but perching on assertion, which it called conclusion. A railway view of the crops is a "hopping" one—that of this Department slow and laborious.

The condition of the crops prior to the frost of 30th of August.—The June and July reports of this Department exhibited a most favorable view of all the crops. Those harvested are undoubtedly large; but the fall crops, as will be seen more fully in this report, were injured in many localities by the continuance of the drought through August. Corn was held back, so that when the frost came, it found much of it in a condition unfit to withstand its severity. The reports of the month of August show more the effects of the drought than of the frost, for many of these had been written on the 28th, 29th, and 30th days of August, before the frost, and those returning after it, were too prudent to return that which could not then be known, except by uncertain suppositions. But many gave their opinions separate from their regular returns, and to a portion of these we now refer, that the extent and character of the frost may be seen.

The frost of August 30.—The frosts of August 28, 29, and 30 were among the most remarkable irregularities of our climate, and, we fear, among the most destructive. From intensely hot weather and a soil heated from Minnesota to Texas, that of itself was sufficient to preserve the temperature above the freezing point for weeks of ordinary weather, in two days, ice was formed of an eighth of an inch in thickness over most of the latitudes between Minnesota and the Ohio river, and seemingly varying in its intensity but little between these

places—the destruction to the crops of Minnesota appearing to be no greater than on the lands adjacent to either side of the Ohio.

It was occasioned, evidently, by a storm extending from the pole to the equator, bringing down the cold air from the arctic regions. Here the early morning air was pleasant, but that of the middle of the afternoon and evening very disagreeably cold for several days. At night when the wind fell, the heat of the ground warmed the air so as to preserve all the eastern States north of Washington from frost; but the northwestern wind, during the day, brought down the cold air, so disagreeable, in the afternoon. But in the northwestern States, which lay more directly in the track of the storm, the heat of the soil was insufficient to shield against frost. To what extent the northwest wind continued blowing during the nights in these States we have no present information to determine.

But one of the peculiarities of this, as of most frosts, was its “*variousness*,” as generally termed. And, from all accounts, it is this which will show a much lighter damage than at first generally supposed. It is proper, therefore, that the cause of this should be examined into.

Every person has observed, in the spring of the year, those peculiar warm bodies of air which have a forward motion from the south to the north, and a spiral one of greater or lesser force. Some will make the dried but unfallen beach leaves rustle from the combined powers of these two forces, whilst others pass among them without moving the leaves. Now, these bodies of warm air are brought directly from the south by the wind. The pressure of the colder air on all sides gives them this rotary motion, and serves to keep them from mixing immediately with the colder air. Just as in meeting a rise in a large river, spots of muddy water are first met with; these gradually become more numerous and larger, until the clear water is seen but in spots, and presently all is muddy. So it is with bodies of heated or cold air as they are forced into a mass of atmosphere of different temperature. There are warm spots and cold ones of greater or lesser extent according to the intensity and duration of the storm.

There are other causes also serving to increase this “*variousness*.” Cold air, being heavier than warm, settles in the lower places, such as in the sink basins of the cavernous limestone regions, and in valleys bordering on creeks and rivers. In the basins the corn is killed, whilst out of them it often is not. In the bottom lands, where the frost would be most intense, the air is kept above the freezing point by the warm exhalations of fog from the creeks and rivers. So, in a like manner, the air from large bodies of water, as the great lakes, protect large districts from frost. A high country is above the frost line; hence the greatest injuries of the recent frosts will be found between the bottom alluvial lands and the highest lands.

Between all these causes we believe it will be found that the recent frosts, although very severe and destructive, have not done that injury which was generally believed, nor can the extent of the damage be ascertained now; much of that supposed to be ruined, as sorghum, indicates an internal life, from its peculiar nature, that will throw out other flowering stems and blades sufficient to mature the plant, but not, probably, to effect such an elaboration of the sap as will render it perfect enough to make sugar. But especial inquiries relative to the injury sustained by the fall crops have been made in the circular for September, when the extent of the injury will be much better known than now.

The *extent* of the frost was great, embracing the States of Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Iowa, parts of Kentucky, and the eastern portions of Missouri and Kansas, doing but little injury in these portions. Sufficient cold to produce frost appears to have been from four to five days' duration in the more northern portions, and a day or two less in the southern. In its course across the lakes and over the heated earth the cold wind appears to have been so much mitigated that when it reached the States of New York,

Pennsylvania, and New England, no frost was found, although fires were quite comfortable; hence it will be seen that the crops in these States, and Maryland, Delaware, and New Jersey continue to promise a most abundant yield.

The returns received at the Department, written between the third and eighth days of September, from all the States visited by severe frosts, generally place the injury to the corn crop at from *one-fifth* to *one-half* the whole crop; but the average of the States of Minnesota, Michigan, and Illinois is three-tenths, and of Indiana four-tenths. The tobacco crop is reported as injured to a still greater extent. There can be but little doubt that this crop has suffered much more than any other. Sorghum is injured less than corn. But it is useless to dwell longer on the extent of injuries that could not be well ascertained at the time these reports were made; we must wait until the returns of next month.

The Cincinnati Horticultural Society.—In the July report we took occasion to refer to the remissness of the Cincinnati Horticultural Society in not responding to the circulars of this Department, thereby withholding from it information of an interest for which that society has done so much—the culture of the grape.

For three months circulars were sent to E. P. Cranch, secretary of the society, from whom came no response. Well knowing the public spirit of this association, and its high intelligence, we could look upon this neglect in no other light than unfriendliness to the Department, which was the more surprising, as we knew it had labored to have this Department established.

The neglect of any other association could have been better endured; but here in Washington, contrasting this the seat of our national government, on sacred soil, of magnificent distances; whose broad avenues are but dust in summer and bottomless mud in winter; where scarcely a flower blooms for the family, or an amateur cultivator is seen; where government has spent its millions on public edifices and grounds without calling into existence, apparently, any taste for horticultural pursuits; a city whose market-places are as revolting as their prices are exacting; where no gardens are in its vicinity to attest a horticultural taste or knowledge—contrasting these things with their opposite at Cincinnati, where this association had shed abroad on labor a taste and an intelligence as the sun sheds light and warmth and beauty wherever it shines—contrasting what the Queen City has with what Washington has not, we could not but express a regret that this public spirited association stood aloof from this Department.

But it seems that Mr. Cranch was not the secretary. The society in the following proceedings exhibits its desire to promote the objects of this Department, and we commend its action to all other horticultural associations, with the injunction to each—*Go thou and do likewise.*

“At the regular weekly meeting of the Cincinnati Horticultural Society, on the 29th August, it was—

“*Resolved*, That a committee of correspondence with the Agricultural Department, at Washington, be appointed, with the view of furnishing the Department with monthly reports upon the agricultural and horticultural interests of the vicinity of Cincinnati.”

This resolution being unanimously adopted, the following gentlemen were appointed on the committee, viz:

Daniel B. Pierson, College Hill post office, Mill Creek township, Hamilton county, Ohio.

R. Buchanan, Cincinnati post office, Clifton township, Hamilton county, Ohio.

John H. Gerard, Mount Washington post office, Anderson township, Hamilton county, Ohio.

Dr. A. Whipple, Delhi post office, Delhi township, Hamilton county, Ohio.

Charles Remelin, Dent post office, Green township, Hamilton county, Ohio.

Robert Brown, jr., Cincinnati post office, Cincinnati township, Hamilton county, Ohio.

Mr. PIERSON is the president of the society, and Mr. BROWN, secretary.

THE TABLES OF THE CROPS FOR AUGUST.

In our remarks on the tables no further notice will be taken of the States which have suffered by the frost, but those only noticed where the crops will, probably, now mature without injury. These States are Connecticut, Delaware, Kansas, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Corn.—In these States this crop is excellent. In Maryland and Pennsylvania it is but *one-tenth* below an average, whilst the rest are either an average or above it. The average of all is 10½.

Tobacco.—This crop, in the same States, is within a very small fraction of an average crop. The injuries to it are small.

Sorghum.—Of the States named, this crop is grown in but six of them, and in them it is just an average crop; but the heavy crop of this product lies within the frosted States, and hence it is unnecessary to dwell longer upon it now.

Flax.—The crop of flax, being uninjured by frost, may be considered for all the States, except Delaware, New Hampshire, and Rhode Island, which do not produce it. The crop is nearly a general average, being 9½ bushels to the acre; but the States producing most, as Ohio, Indiana, and Iowa, are below an average, being 8, or two bushels below, and Illinois and Pennsylvania are 9, or one bushel below, for the yield of an average acre is about 10 bushels. The great amount sown places the actual production far above the crop of 1862. This will be seen from the report for July, where the general average is 120 per cent. greater than the crop of last year.

The lint or straw of flax.—To the question whether the lint or straw was saved, the returns show 213 yes against 46 no. In the heavy flax-growing States we have, in Illinois, 20 yes, 14 no; in Indiana, 24 yes, 13 no; in Iowa, 27 yes, 5 no; and in Ohio, 36 yes, and 7 no. The amount of straw will be adequate to the demands for it, unless the success of the improvements in machinery for spinning it should be such as to create a demand beyond what the want of cotton will produce.

The world is determined to show itself independent of King Cotton, as will be seen from the following notice of the increase of flax culture in Ireland, in the London Money Market Review, August 29:

Flax cultivation.—The impetus given to the cultivation of fibrous articles, in consequence of the absence of our usual cotton supplies from America, is shown in the large increase of land under flax cultivation in Ireland this year, the total being returned at 214,092 acres, against 150,070 acres last year, being an increase of 64,022 acres."

Cotton.—As nearly all of this product, of which we have returns, is in the frosted States, we must await the next monthly report for an account of its condition. But here we set right an erroneous statement made in reference to the production of cotton in Utah, in our July report, being led into it by returns made in the northern part of this Territory. Mr. J. E. Johnson, of Spring Lake Villa, near the southern line of the Territory, about equidistant from Los Angeles, in California, and Salt Lake City, thus writes to the Department: "Last year we produced cotton—say, 75,000 pounds—some ten or more tons of which was hauled across the plains and sold in New York. This year we shall probably fall not much short of 200,000 pounds. The cotton-growing district is on the Rio Virgin and Santa Clara, some 350 miles south of Salt Lake City, where we have a colony of some 500 families."

The supply of cotton is an interesting subject, for the condition of American affairs will induce every country to make trial of its cotton-growing capabilities. An article from the London Times shows that for six months ending June 30 the total imports of cotton into England were 2,134,775 cwt., of which 6,876 cwt. only came from this country. India furnished 1,204,763 cwt., and Brazil and Egypt 565,763 cwt. The whole number of places from which cotton was received was sixty-six.

The Hay crop.—This great crop of all sections of the country has been secured in a much better condition than was anticipated from the constant rains in the eastern States during the harvest. In Connecticut, Delaware, Massachusetts, New Hampshire, and Rhode Island, the condition of the hay was *two-tenths* below an average, and in Maine, Maryland, Michigan, Minnesota, New Jersey, New York, Pennsylvania, and Vermont, it was *one-tenth* below. In the remainder of the States it was of an average condition, or above it. How far the frost may have injured corn fodder, so as to make foddering substances scarce, cannot now be determined, but where hay is scarcest the fodder is most injured. But the wheat straw in these sections is excellent.

Fruits.—The general returns in the column for *Grapes* present a favorable account of this delicious fruit. It is $9\frac{1}{2}$ in appearance, but the returns from the frost are meagre. The rot, nevertheless, has prevailed to a considerable extent in many localities, and the Concord which an eminent pomologist at Cincinnati but recently classed among the hardy varieties, has suffered much from mildew. It is yet too early to determine how far the Delaware can uphold itself against heavy soils and unfavorable climatic influences.

The following report of the condition of the grape crop in the west has been forwarded to the Department:

CLIFTON, September 10.

DEAR SIR: At your request I present a report on the grape crop. In the vicinity of Cincinnati, and for thirty or forty miles around, the yield will be from one-third to one-half less than an average crop, supposing 200 gallons to the acre to be the average. This will also be the result around Ripley, Vevay, and in those parts of the Ohio valley on the limestone formation. In the coal and sandstone regions, and in the islands and on the shores of Lake Erie, the crops, with very few exceptions, are good. The rot, so injurious to us, did but little damage there. In Missouri, southern Illinois, and Indiana, I am informed the rot has destroyed one-third of the crop. But on the Upper Mississippi, and in Wisconsin, the grapes are said to be very fine. In Kentucky, near Lexington and Frankfort, some vineyards have escaped, whilst others have suffered from this disease. These remarks apply, of course, to the Catawba grape, with which nearly all our vineyards are planted. The Delaware, Norton, Concord, and some other experimental varieties, have showed but little, if any, rot. Since the rot ceased, in August, the weather has been very favorable for ripening the grape, and the quality of the wine ought to be good.

Very respectfully,

R. BUCHANAN.

D. B. PIERSON, Esq.,

President Cincinnati Horticultural Society.

The *Peach* crop shows a great deal of irregularity, as is usual with it, but it may be set down as a good crop. That of *Apples* possesses much of the same irregularity. In Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, and Ohio, the crop will be light, but in the other States it will be greater than last year. *Pears* are more hardy than apples, and their production is evidently increasing.

Potatoes.—The continued drought in many sections of Iowa, Illinois, and

Indiana, have materially lessened this crop in those States, and the frost of August will destroy much of the late planted. Our table shows the crop as injured by drought chiefly, and in these States it is *two-tenths*, or twenty per cent. below an average. The injury from potato bugs has not been so great as usual. In Maryland, Minnesota, and Rhode Island, their condition is the same, and in Ohio it is down as low as 7, or *three-tenths* below an average. The rest of the States exhibit an average of nearly 11, or nearly *one-tenth* above an average.

Gardens.—The appearance of the gardens is not much different from that of the potato crop. They have suffered from drought in the large western States, of Ohio, Indiana, Illinois, and Iowa, as also in Minnesota and Nebraska Territory. But they are increasing in number and extent.

Pastures.—In the great grazing States of the west the condition of fall pastures is not favorable, but in the other States it is unusually good, owing to the rains of August.

Butter.—The amount made is nearly an average, being $9\frac{9}{11}$. The droughts in the western States have caused a diminished amount. The demand for it, however, has been above an average, being 11, or *one-tenth* more. The high prices of meats have led to this, and there is but little doubt of the fact, that so long as present prices rule for meats, butter will be much more largely consumed than usual.

Cheese.—Without entering into detail, it may be said that this product, as to supply and demand, is in the same condition as butter.

Weather.—There is no part of our table more instructive than this. Heretofore the reports have presented the condition of the weather for the country during the month, but in order to present it more accurately, returns of each week are given. We see at a glance the general condition of a State as to rain. Thus, Indiana has but 60 wet and favorable weeks against 135 dry and very dry. It is from this State that most complaints of drought have come. Ohio has 70 weeks wet and favorable against 134 dry and very dry. Pennsylvania is nearly equally divided between them, but it had a more favorable condition of the weather during the month of July than either of the States of Indiana and Ohio. The general result is favorable, there being 550 weeks favorable, 336 wet, 448 dry, and 253 very dry, and 110 very wet.

For the amount of rain, the reader is referred to the meteorological tables.

Condition of the crops during August.

STATES.	CORN.		TOBACCO.		SORGHUM.		FLAX.			COTTON.		HAY.	
	Appearance of crop in August.	Injury from drought or other cause.	Appearance of crop in August.	Injury from drought or other cause.	Appearance of crop in August.	Injury from drought or other cause.	Estimated yield per acre of seed.	Was the lint generally saved in the county? Yes or No.		Appearance of crop in August.	Injury from drought or other cause.	Appearance of crop when harvested.	Condition in which the hay was scoured.
							<i>B'hl</i>	<i>Yes.</i>	<i>No.</i>				
Connecticut.....	11	---	10	---	---	---	9	---	---	---	---	10	8
Delaware	10	1	---	---	10	1	---	---	---	---	---	8	8
Illinois	8	1 $\frac{1}{2}$	8	1 $\frac{1}{2}$	8	1 $\frac{3}{4}$	9	20	14	7	7	8	11
Indiana.....	8	1 $\frac{2}{3}$	9	1	7	2	8	24	13	8	1 $\frac{1}{2}$	9	11
Iowa.....	9	1	9	1	8	1 $\frac{1}{2}$	8	27	5	8	2	7	10
Kansas.....	11	---	10	$\frac{1}{2}$	11	---	10	1	---	8	2	11	11
Kentucky	12	---	11	---	---	---	---	2	---	10	---	8	10
Maine.....	10	---	10	---	---	---	8	4	---	---	---	9	9
Maryland.....	9	1 $\frac{1}{2}$	9	$\frac{1}{2}$	10	---	10	3	---	9	---	8	9
Massachusetts	11	---	10	$\frac{1}{2}$	---	---	10	1	---	---	---	11	8
Michigan	11	$\frac{1}{2}$	10	---	9	1	8	10	1	---	---	10	9
Minnesota	8	1 $\frac{1}{2}$	8	1	9	1	9	4	1	---	---	8	9
Missouri.....	9	1	9	$\frac{1}{2}$	10	---	8	5	---	9	1	8	10
New Hampshire.....	11	---	10	---	---	---	---	1	---	---	---	10	8
New Jersey.....	10	$\frac{1}{2}$	10	---	10	---	9	4	---	7	7	9	9
New York	10	---	10	---	10	---	10	24	3	---	---	10	9
Ohio	9	1 $\frac{3}{4}$	9	1	9	1 $\frac{1}{2}$	8	36	7	6	6	6	12
Pennsylvania	9	1	9	1	9	1	9	34	1	---	---	7	9
Rhode Island.....	10	---	10	---	---	---	---	---	---	---	---	11	7
Vermont	11	---	10	---	---	---	10	3	---	---	---	12	9
Wisconsin	10	$\frac{1}{2}$	9	$\frac{1}{4}$	9	$\frac{1}{4}$	11	10	1	---	---	9	10
Nebraska Territory	8	2	---	---	8	2	---	---	---	---	---	9	12

Condition of the crops during August—Continued.

STATES.	GRAPES.		PEACHES.		APPLES.		PEARS.		POTATOES.		GARDENS.	
	Appearance of crop in August.	Injury from rot or other cause.	Appearance of crop in August.	Amount of crop compared with 1862.	Appearance of crop in August.	Amount of crop compared with 1862.	Appearance of crop in August.	Average increase in trees planted.	Appearance of crop in August.	Injury from potato bug, or other cause.	Appearance of gardens in August.	Average increase of garden products.
Connecticut	10	----	6	4	9	7	10	10	9	1	11	12
Delaware	10	----	8	8	6	6	10	----	10	----	8	----
Illinois	10	$\frac{3}{4}$	10	13	10	12	10	11	8	$1\frac{1}{2}$	8	10
Indiana	9	1	9	12	11	10	9	11	8	$1\frac{1}{8}$	8	9
Iowa	10	----	11	12	11	12	9	13	8	$1\frac{1}{2}$	8	9
Kansas	9	1	10	9	10	11	10	11	11	$\frac{1}{8}$	11	11
Kentucky	8	3	10	10	11	11	12	8	12	----	10	11
Maine	10	----	----	----	8	6	9	11	10	$\frac{1}{2}$	11	11
Maryland	9	1	6	7	6	5	8	11	8	2	9	10
Massachusetts	9	1	8	11	7	6	9	11	9	1	10	11
Michigan	10	1	10	14	11	14	10	11	10	$\frac{1}{2}$	10	10
Minnesota	10	----	10	8	12	15	10	12	8	2	7	10
Missouri	9	1	8	9	10	11	11	10	11	1	9	8
New Hampshire	9	----	----	----	8	6	8	10	11	----	10	11
New Jersey	8	2	8	6	7	6	8	10	9	$\frac{1}{2}$	10	11
New York	10	----	8	6	8	8	10	11	10	$\frac{3}{8}$	10	11
Ohio	9	1	5	7	8	7	8	9	7	$1\frac{3}{8}$	6	9
Pennsylvania	10	----	7	7	7	8	8	10	10	1	9	10
Rhode Island	----	----	8	4	10	14	8	----	8	2	10	----
Vermont	10	----	5	----	9	8	8	10	9	$\frac{1}{2}$	11	11
Wisconsin	10	----	12	18	11	13	10	14	10	$\frac{1}{2}$	10	11
Nebraska Territory	10	----	----	----	----	----	----	----	8	----	8	12

Condition of the crops during August—Continued.

STATES.	PASTURES.		BUTTER.		CHEESE.		WEATHER, IN WEEKS.				
	Appearance of pastures in August.	Injury from drought or other cause.	Average amount made in the country this season compared with 1862.	Average market demand for butter this season.	Average amount made in the country this season compared with 1862.	Average market demand for cheese this season.	Favorable.	Dry.	Very dry.	Wet.	Very wet.
Connecticut	11	....	11	11	11	11	11	1	....	4	4
Delaware	10	....	10	12	10	10	1	....	7	....	....
Illinois	8	2	9	11	9	11	74	67	54	27	3
Indiana	7	2	9	11	9	11	49	93	42	11	....
Iowa	9	1	9	11	9	11	60	48	13	29	6
Kansas	12	....	11	10	11	11	6	15	5	4	2
Kentucky	10	....	10	10	10	10	6	5	2	2	1
Maine	11	....	10	11	11	11	12	11	4	20	1
Maryland	8	2	9	11	10	10	13	11	13	3	....
Massachusetts	12	....	10	11	10	11	12	4	....	23	5
Michigan	12	....	10	11	10	11	29	1	2	23	12
Minnesota	11	....	11	11	11	11	30	11	7	34	2
Missouri	8	2	8	11	7	11	10	2	10	5	....
New Hampshire	12	....	10	10	10	11	9	3	1	10	9
New Jersey	10	$\frac{1}{2}$	10	11	10	10	18	10	7	3	2
New York	11	$\frac{1}{2}$	10	11	11	11	48	18	5	59	30
Ohio	7	3	8	11	9	11	51	89	45	19	2
Pennsylvania	9	11 $\frac{1}{2}$	9	11	10	11	57	43	34	22	5
Rhode Island	10	....	8	14	....	....	3	....	....	1	....
Vermont	12	....	11	11	10	11	16	4	....	13	7
Wisconsin	11	....	10	11	11	11	31	10	....	24	19
Nebraska Territory	9	2	12	11	11	10	4	2	2	....	....

INFORMATION TO CORRESPONDENTS ON SPECIAL SUBJECTS.

MANUFACTURE OF SORGHUM SUGAR.

The Department of Agriculture has received many solicitations to lay before the farmers such directions for making sorghum sugar and molasses as may aid them in the coming sugar season. The following article is therefore published in the monthly report, the substance of which is taken from communications that will be found in the next annual Agricultural Report, but which will not be published in time for some of the preliminary measures necessary to successful sugar operations.

1. *Why the granulation of sugar does not readily take place.*—The analyses of various specimens of sorghum molasses by the chemist of the Department show that there are large portions of sugar in them which do not crystallize, although most of it is crystallizable. In eight specimens, most of which had deposited one-third of their bulk of sugar, and from which all grains of sugar were carefully excluded, there was an average of 22.65 per cent. of uncrystallizable sugar, and 36.67 per cent. of crystallizable. Why do these 36.67 parts not granulate?

The chemist answers it by saying, that "this cane sugar is held in solution by the salts natural to the juices of the cane, by the viscous (sticky) character of the molasses, which in all molasses impedes a free motion of the molecules (small particles) of cane sugar seeking crystallization, and by the presence of gum and other impurities."

Dr. Jackson, in his analyses of the sorghum molasses, says: "Sirup is not liable to crystallize owing to the presence of acid matter."

Here, then, we have the causes pointed out; salts, gum, acids, and the stickiness of the molasses. The practical question is:

2. *How can we overcome or get rid of these?* In two ways: *by lessening them in a perfectly matured cane, and by destroying those that remain during the boiling process.*

1. The absolute necessity of having the canes perfectly matured is seen in two things: in the nature of the cane, and in the analysis of it in different stages of its growth.

Writers on vegetable physiology inform us that gum and dextrine are first formed in plants. These are subsequently transformed into sugar. Dextrine is of a gummy character. Every farmer is familiar with these transformations in the gradual ripening of fruits. Acid and thin watery juices are converted into thick, sweet juices, as is seen in the gradual ripening of winter apples and pears. Any observing farmer will see that a similar transformation is taking place in the sorghum plant from the time of its flowering until the stalk and leaves have turned red.

2. Analysis confirms these views of vegetable philosophy. Dr. Jackson says: "Unripe canes, when they were about to blossom gave 11 per cent. of sugar, *but none of it would crystallize.* So also when they were just flowering, and also when the seed had begun to form. All these canes had much gum, dextrine, and acids. But the ripe canes yielded from 12½ to 16½ per cent. of sugar which crystallized. Here we see a great change. Gum, dextrine, and acids into, *first*, uncrystallizable sugar; *second*, into crystallizable sugar."

A comparison of the specimens of sorghum molasses sent to the Department confirms these results. One with inferior cultivation of the cane, and a less favorable soil, deposited more than one-half its bulk of sugar, whilst another of excellent cultivation and soil deposited none at all. The first was not cut until the blades and stalks had turned red; *the last about four weeks before that time.* The seed of the last had turned black, but as the roots and evaporation of the

blades continue in full vigor after such ripening of the seeds, they are no criterion by which to judge the ripeness of the cane juices. *When the leaves begin to turn red is the only true standard for determining the ripeness of the juices.* When, therefore, the canes are perfectly grown we see that there are far less gum, dextrine, and acid, and much more sugar in them.

2. But still there will be salts and enough of gums and acids to interfere with the granulation, and they must be destroyed during the boiling process. How can this best be done?

PROPER MODE OF MAKING SUGAR.

The great question is, how can sugar best be made from the northern cane? The chemist of the Department has investigated this question pretty fully, and we take an extract from that part of his report which refers to sugar-making by the *masses* :

"Defecation, or clarification.—Several modes have been adopted or proposed at different times for effecting defecation. That usually employed is lime. The temperature of the juice is raised, milk of lime (whitewash) is added until the reaction is faintly alkaline to litmus paper, and the juice is then boiled for a short time. The heat is then shut off, when clarification rapidly takes place. A thick green scum rests on the top of the pan, whilst heavy matters sink to the bottom. This treatment separates all matter capable of precipitation by lime at the boiling temperature. The lime protects the cane sugar, but decomposes a portion of the uncrystallizable sugar if it is present. This treatment does not remove all of the nitrogenized matter, so injurious to crystallization, all of the gum, nor all of the salts.

"The juice is then filtered through animal charcoal. This removes a portion of the lime, all of its coloring matters, and certain of the salts, without materially lessening the amount of the sugar. Of course all of its solid matters in suspension are removed by the filter.

"The juice is then again subjected to a boiling temperature, care being taken that it contains enough lime to react faintly alkaline. Its water is, of course, driven off, and the lime acts upon the nitrogenized substances, at the boiling temperature, so as to decompose them, which is shown by the ammonia given off at this stage of the process. Other substances are at the same time separated as a scum, which is removed. It is very important to observe that when grape sugar is present the lime decomposes it, and that this action is stronger the higher the temperature of the boiling liquid. Brown compounds of lime with the products of decomposition of the grape sugar are formed. I believe that this is the source of the difficulty which farmers have had with the sorghum juice when lime has been used for defecation.

"The juices operated upon have been abundant in grape sugar. If no lime has been used, the nitrogenized substances are not sufficiently separated, while, if lime has been used, it has acted upon the grape sugar to produce an abundance of deleterious substances. In either case there are present at the close of the process substances which stand in the way of crystallization. The remedy against this last evil consists in obtaining a cane which produces a juice as free from grape sugar as possible."

After the juice is boiled down just so low as to permit it to flow freely through the animal-charcoal filter, it should be filtered a second time. "This second filtration," says the chemist, "removes coloring matter, a large portion of the lime, nitrogenized matters, and small quantities of certain salts, and leaves in the juice some organic matter (gum?) and certain mineral salts. It is not subjected to any further purification, but is rapidly boiled down to the point of crystallization."

This point is arrived at when the molasses is very thick. It should then be put in shallow vessels, and kept in a moderately warm room. It will soon granulate, and should there remain sufficient gum to prevent rapid draining, the sugar may be placed in a coarse bag, and pressed.

The boiling down should be rapid, for a low heat, long continued, converts the crystallizable sugar into uncrystallizable. One of the specimens forwarded to this Department, made from excellent juice, but boiled slowly, upon analysis, showed 64.11 per cent. of uncrystallizable sugar, and but 11.07 of crystallizable.

The recommendation of the chemist to use lime may be objected to by many farmers, whose past experience is not in its favor. But the chemist points to the cause of former failures. Slow boiling and immature cane resulted in the production of a large quantity of sugar that would not crystallize, and this is decomposed by the lime, producing brown compounds of lime. But crystallizable sugar is not decomposed by it. Here, also, is seen the absolute necessity of having a perfectly matured cane; and, again, we would impress on the minds of all that the only true standard of such maturity is *the turning red of the blades and stalk*. In Louisiana the blades of the cane die as do the blades of Indian corn, commencing with the lowest and ascending to the top. There no part of the stalk is used for sugar purposes where the blades are still green, but it is cut off at the top dead blade. The blades of sorghum die like the gum-tree leaf, by turning red, and then gradually changing to brown in drying. The first change shows that the vital action of the leaf has ceased, and that the elaboration of the sap is completed.

MILDEW.

From recent correspondence, it is evident that the remarks on grape mildew, in the last monthly report, were timely, and touched a subject of great importance that is at present attracting much attention. In some sections of country the rot in the grape has been making great havoc during the past and preceding month; and although (as may always be expected) there are many favored situations where the crop is healthy, yet the liability to this disease is acknowledged, and information is sought both with regard to this and other fungoid diseases of the grape vine.

For the benefit of those commencing observations on this subject it may be useful to describe the general appearance and effects of grape mildew.

It is believed by some that fungi will only attack disorganized tissue; in other words, that it is rather a consequence than a cause of disease. While this may in general be true, yet it is well known that some kinds of fungi will at least *spread* on healthy vegetation. It has also been recorded that the fungus development depends more upon the material body by which it is nourished than upon the seeds or sporules from which it springs; that certain acid fluids continually produce certain species, and certain alkaline mixtures as constantly yield other distinct kinds. Diversity of opinion on this subject is of all things the most likely, since the diseases of plants are comparatively but little understood, and first symptoms so difficult of detection, that the consequence may readily be mistaken for the cause.

There are two apparently distinct forms of mildew that attack the grape in this climate. First, there is the form that seems to attach itself more particularly to the foreign vine, or the varieties of *vitis vinifera*. This may be described as a white powdery-looking substance enveloping the upper surface of the leaves, and occasionally spreading on the young wood, fruit stalks, and berries. A similar fungus may frequently be observed on foreign gooseberries; also on the lilac, hawthorn, and on various other trees and weeds at certain seasons. This has been termed an erysiphe, (spec.) Its effects on plants are

to retard growth, prevent thorough maturing of the plant, and thus weaken and destroy its ability to resist rigorous temperatures.

The second form of mildew is that which attacks most varieties of our native grapes. This invariably commences on the underside of the leaves; its first appearance is that of a white downy spot, spreading rapidly under conditions favorable to its growth. A practised eye can readily detect affected plants from the yellowish spotted appearance presented on the upper surface of the foliage. As it continues to develop, the vitality of that portion of the leaf is destroyed, and becomes of a brown color, under the influence of the sun. This brown, burnt, or scalded appearance, so frequent on vine leaves, is, therefore, the result of mildew, although many grape-growers do not recognize it as such.

When this destruction of foliage reaches a certain point the young shoots remain green, and the wood never ripens. The fruit will also ripen imperfectly, if at all, and many of the berries remain green on the bunches—an appearance by no means rare in the Isabella and other well known kinds.

It is conjectured that the rot in the berry is a disease distinct from either of those mentioned above. On this matter there are various opinions held by our correspondents. One writer remarks that, "although the leaf mildew may frequently occur without rot in the berry, yet the rot is always accompanied with mildewed leaves." Again: it is evident, from the returns sent us, that the nature of the soil has a decided influence; on well drained, or on gravelly and sandy soils the rot is seldom seriously injurious. "My soil," writes one, "is gravelly sand, with, perhaps, not more than two per cent. of organic matter. I have no trouble with rot or mildew; I am well sheltered on the north and west, and both Catawba and Isabella bear abundantly and ripen in perfection." On the other hand, it would appear that vines on clayey or strong loamy soils were annually, more or less, subject to this malady. We learn of a vineyard of the Catawba which is to be rooted up on account of losses from rot. Much can be gleaned from casual remarks. A letter before us mentions a case of rot occurring in the Delaware grape, where the vines were highly manured. It is generally allowed that of all cultivated varieties the Delaware is, perhaps, the most exempt from the rot. The Concord, heretofore considered proof against all diseases, has suffered severely from rot in many localities. A writer from northern Pennsylvania remarks that, "in our mountain ranges we are not troubled with grape rot." Another, from an eastern county of the same State, informs us that "all my grapes have rotted, more or less, this summer, except the Delaware and Maxatawny." He does not mention what other varieties he cultivates, which it is important to know.

These extracts from the correspondence of the Department are introduced for the purpose of pointing more definitely to the most important objects of attention in further observations.

INJURIOUS INSECTS.

During the course of the last month numerous insects have been sent to this office for examination; many of them being of little consequence to the farmer, we will merely mention some which require the attention of the agriculturist at the present time, or such as not yet being widely disseminated, if not made known in time, may eventually prove very injurious. Every farmer must have observed his apple, cherry, and various other trees, covered with a web which forms the nest or shelter for hundreds of small hairy caterpillars. These should now be taken from the trees and the caterpillars either crushed under foot or burnt; as, if allowed to perfect their changes and become moths or millers, next year we may expect our orchards and shade trees to be almost entirely defoliated. This insect can be destroyed most readily when in the larva or caterpillar state, congregated together in their web, and before they have changed

into perfect insects. It is also of much importance to destroy the nests wherever found, even upon the wild cherry trees and persimmons, in the hedge rows near the public roads, where the farmers think they do no injury, as it is from these uncared for and almost unnoticed nests that the countless hordes of perfect moths issue which do so much injury to the orchards. The scientific name of the perfect insect is *Hyphantria texator*; the word *Hyphantria* being derived from the Greek word signifying weaver, in allusion to the web woven by the caterpillars, which are commonly known by the name of fall web worms. These caterpillars form large cobweb-like nests, generally toward the ends of limbs, where they devour the leaves in and around them. In this web they live together in societies during the months of August and September, when they afterwards disperse to change into pupæ. These pupæ are formed in thin, almost transparent, cocoons of silk intermingled with hairs, in which they remain all winter; and they may be found under the bark of trees, fence rails, or wherever there is a convenient shelter. The following June or July the perfect insect makes its appearance, and deposits its eggs upon the leaves or extremities of the branches, to be duly hatched into a brood of caterpillars in a short time. Such being a brief statement of the habits and natural history of this insect, it will be perfectly self-evident to any person that the most proper time to destroy them is now, when they are congregated together in their web, and not when they are dispersed all over the fences and fields as pupæ or perfect moths. Let all the farmers of a certain district join together in destroying these nests, by pulling them down or burning them, and they will have very little of this nuisance next autumn. The moth produced from this caterpillar is white, without any spots on the wings, and has the thighs of the fore legs of a tawny yellow color in front, while the feet are black and white.

As the grape vine has now become a subject of the greatest importance not only to the agriculturist, but to every farmer, we have received a number of insects which have been found upon it, amongst which is an insect as yet comparatively little known to our fruit-growers, which it may be of interest to mention in this paper. It is a small beetle of a grayish-brown color about 0.20 of an inch in length and covered on the back and wings with grayish hairs; it is stated to have been extremely injurious to the leaves of the cultivated grape vine in Pennsylvania, and has been found on wild grape vines in Maryland; it eats holes in the foliage and completely riddles the leaves. This insect is a *Pachnephorus* or *Fidia*, and bears considerable resemblance to the *P. viticulus* of Uhler, if it does not prove to be identically the same. As we have received no complaints of its ravages in other quarters, the conclusion is that it may be only local as yet, or found merely in other places on wild grapes; it may be well, therefore, to warn grape-growers of its existence, as it undoubtedly will spread, and may, eventually, do much mischief. The correspondent who sent the specimens stated that hand picking had been tried, but that being too slow a process, he had dug up his grape vine borders to destroy the pupæ, as he thought they came out of the ground, and adds: he "thinks their numbers were considerably diminished by the latter experiment." Now, the question is, where do the larvæ live, and on what vegetable substance? also, where are the pupæ formed? These facts known, it would be easy to suggest a remedy.

The larva or caterpillar of a small moth has been very injurious to the foliage of the grape vines in New York and elsewhere. This insect is called the *Procris Americana*, or American Forester, by Dr. Fitch. The eggs are laid in clusters of twenty or more on the underside of the leaves in June and July. The larvæ or caterpillars, which are of a yellow color with transverse rows of black velvet tufts on each ring, and have hairs on each extremity of the body, are gregarious, and feed in companies side by side on the leaves, and sometimes on the fruit. They attain their full size in August.

In the north there is but one brood of insects during the season, but in the

south there are two or more crops of them yearly. The pupæ are enclosed in tough oblong cocoons and placed in sheltered spots. The perfect moth, which measures about 0.90 across the wings, when expanded, is very easily recognized by its blue black color and bright orange neck. The end of the body terminates in a broad fan-like notched tuft. These caterpillars may be destroyed when young and massed together upon the single leaves, or by syringing the vine with a solution of whale oil soap, although perhaps this remedy might impart a nauseous taste to the grapes if nearly ripe, but it is the only one which can be recommended at present.

In New Jersey a snout beetle or curculio (*Pachnephorus*) has been very much complained of as eating holes in the leaves of Indian corn. This insect is from 0.30 to 0.35 of an inch in length, and has a long horny snout or proboscis, somewhat bent down under the head. It is of a blackish color with bright sculptured marks on the thorax, and has the wing cases indented with longitudinal stripes and punctures. Some of the specimens sent were covered with earth as if they had just emerged from the ground; it would be well, therefore, to study the preparatory states of this insect, as there is a similar insect of a larger size and commonly known as the Bill bug, from its long snout or proboscis, which is very injurious as a larva or grub to corn in low and marshy situations in the southern States. The egg is probably deposited in the stalk, where the larva feeds upon the substance of the interior. The corn thus attacked turns yellow and eventually withers away without bearing any grain; and it would be well for the farmers in New Jersey and other States to observe whether their corn is not attacked in a similar manner when young, by a small yellowish grub in the stalk previous to the appearance of the perfect insect, which destroys the foliage merely. In a recent English work, road-dust, soot, and a little guano are recommended to be sown over young plants of cabbage, tobacco, and other herbaceous plants, during the day time, to destroy the little jumping flea-beetles which are so destructive when in the seed bed. In another remedy the same materials are recommended, substituting sulphur for the guano, and applied at night; quicklime is also mentioned as being useful; but a method has been practiced by the Commissioner of Agriculture, which he states to be eminently successful in preventing the ravages of all insects, including the jumping flea-beetle, the cut worm and others. This is nothing but the application of gas-house lime over the beds or fields where the insects are numerous, and the nauseous odor arising from it effectually drives them away. It has also recently been discovered that a small quantity of coal oil will effectually destroy insect life. These remedies are merely suggested to our farmers as experiments, and we shall be happy to hear from them as to their success, as it is from practice alone that we can learn what is of real utility or otherwise, and the results will be made known to the public in future papers.

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of August, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this August compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for August, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND RAIN OF AUGUST, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornishville	York	G. W. Guptill	3	88	30, 31	52	68.8	4.39
Foxcroft	Piscataquis	Mark Pitman	3, 11	83	30, 31	50	66.3	3.23
Stenben	Washington	J. D. Parker	10	85	31	48	65.0	2.30
Linneus	Aroostook	A. G. & Miss Young.	3	86	16	47	63.9	2.56
NEW HAMPSHIRE.								
Littleton	Grafton	Robert C. Whiting..	5, 11	88	31	44	66.6	4.60
Stratford	Coos	Branch Brown	9	83	27	42	63.7	3.04
Claremont	Sullivan	Arthur Chase	3	92	31	45	69.0	5.78
Plymouth	Grafton	J. S. Ryan	10	82	23	56	.....	5.90
VERMONT.								
Burlington	Chittenden	McK. Petty	11	82	31	47	65.6	2.41
Lunenburg	Essex	Hiram A. Cutting..	11	98	31	39	70.0	2.90
Craftsbury	Orleans	James A. Paddock..	9	81	31	44	62.9	1.66
Springfield	Windsor	Rev. J. H. Chickering	2, 10	92	31	46	70.0	5.92
Brandon	Rutland	David Buckland	2, 5, 6	88	31	48	69.7	7.28
MASSACHUSETTS.								
New Bedford	Bristol	Samuel Rodman	3	90	31	56	72.5	2.42
Amherst	Hampshire	E. S. Snell	3	90	31	49	70.1	6.11
Mendon	Worcester	Jno. George Metcalf.	3	90	30, 31	53	71.0	4.67
Topshfield	Essex	John H. Caldwell..	3	92	31	53	70.3	4.97
Williamstown	Berkshire	Albert Hopkins	11	88	31	45	69.1	5.24
Baldwinsville	Worcester	Rev. E. Dewhurst	3, 10	86	31	49	65.9	5.00
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell..	9	89	18	51	70.3	4.59
CONNECTICUT.								
Pomfret	Windham	Rev. Daniel Hunt..	3	87	30, 31	52	69.6	6.24
Middletown	Middlesex	Prof. John Johnston.	3	94	27	50	70.9	4.90

Temperature and rain of August, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Fishkill Landing.....	Dutchess.....	W. H. Denning.....	3	92	27, 31	54	71.3	3.86
Gouverneur.....	St. Lawrence.....	Cyrus H. Russell.....	11	91	18, 30, 31	46	68.3	1.75
Rochester.....	Monroe.....	Dr. M. M. Mathews.....	11	90	30, 31	46	69.1	3.70
Oswego.....	Oswego.....	Wm. S. Malcolm.....	11	90	31	49	68.7	5.25
Theresa.....	Jefferson.....	S. O. Gregory.....	11	93	26, 30	48	66.0	2.41
Clinton.....	Oneida.....	H. M. Paine, M.D.....	11	96	31	47	70.5	5.84
Buffalo.....	Erie.....	William Ives.....	11	91	31	44	69.8	2.96
Wilson.....	Niagara.....	E. S. Holmes.....	11	93	30, 31	47	71.1	.....
South Hartford.....	Washington.....	G. M. Ingalsbe.....	2, 3, 6	88	31	48	71.0	10.12
Mohawk.....	Herkimer.....	James Lewis.....	11	88	31	46	70.9	.....
South Trenton.....	Oneida.....	Storrs Barrows.....	.....	.....	.....	.....	.....	5.25
Oneida.....	Madison.....	S. Spooner, M.D.....	11	92	30	46	69.3	12.73
NEW JERSEY.								
Janesburg.....	Middlesex.....	Rev. Wm. M. Wells.....	3	95	28	55	76.6	2.52
Newark.....	Essex.....	W. A. Whitehead.....	3	91	30	53	73.7	4.98
Progress.....	Burlington.....	Thomas J. Beans.....	3	101	31	56	79.4	4.91
PENNSYLVANIA.								
Philadelphia.....	Philadelphia.....	Pf. J. A. Kirkpatrick.....	3	94	30	60	*	4.29
Harrisburg.....	Dauphin.....	John Heiseely, M.D.....	10, 11	93	31	53	79.4	1.06
Fleming.....	Center.....	Samuel Brugger.....	11	96	31	42	72.5	3.23
Tioga.....	Tioga.....	E. T. Bentley.....	10	96	31	40	70.7	.....
Canonsburg.....	Washington.....	Rev. W. Smith, D.D.....	10, 11	91	30	41	71.8	1.85
MARYLAND.								
Sykesville.....	Carroll.....	Miss Harriott M. Baer.....	3, 10, 11, 14, 21	85	27	51	77.0	0.75
St. Mary's.....	St. Mary's.....	Rev. J. Stephenson.....	16	95	30	62	80.0	0.27
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Inst'n.....	11	93	31	54	78.2	0.86
OHIO.								
Welshfield.....	Geauga.....	B. F. Abell, A.M.....	2, 20	90	30, 31	47	71.3	6.09
Austinburg.....	Ashtabula.....	J. G. Dole and C. L. L. Griffing.....	2, 4	92	3, 31	41	70.1	3.11
College Hill.....	Hamilton.....	I. H. Wilson.....	2	88	30	40	73.9	1.29
Urbana.....	Champaign.....	Prof. M. G. Williams.....	4, 15	93	30	41	72.6	1.66
Portsmouth.....	Sciota.....	L. Engelbrecht.....	11	90	30	47	74.5	3.00
New Lisbon.....	Columbiana.....	J. F. Benner.....	10	94	31	36	73.9	1.89
Cleveland.....	Cuyahoga.....	Mr. & Mrs. G. A. Hyde.....	5	92	31	49	73.3	2.06
Bowling Green.....	Wood.....	W. R. Peck, M.D.....	7	88	31	43	71.8	2.44
Newark.....	Licking.....	Israel Dillé.....	4	97	30, 31	41	76.3	2.58
Cincinnati.....	Hamilton.....	G. W. Harper.....	24	94	30	45	72.0	2.99
Westerville.....	Franklin.....	Prof. John Haywood.....	2	91	30	43	71.8	3.66
Hillsborough.....	Highland.....	J. McD. Mathews.....	2	89	30	41	73.2	2.46
Toledo.....	Lucas.....	J. B. Trembly, M.D.....	2	95	30	48	73.0	2.21
Kelley's Island.....	Erie.....	Geo. Huntington.....	5	89	29, 30	52	72.2	1.74
MICHIGAN.								
Monroe.....	Monroe.....	Florence E. Whelpley.....	9	95	29, 30, 31	50	70.9	6.13
Ypsilanti.....	Washtenaw.....	C. S. Woodard.....	2	88	29	47	69.6	5.00
INDIANA.								
New Castle.....	Henry.....	T. B. Redding.....	14, 15, 21	93	30	36	73.8	3.12
South Bend.....	St. Joseph.....	Reuben Burroughs.....	2	94	29, 30	40	70.8	4.86
New Albany.....	Floyd.....	Dr. E. S. Crozier.....	15	93	30	45	75.0	2.27

* Average mean for 12 years, 74.8.

Temperature and rain of August, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
INDIANA—(Cont'd.)								
New Harmony.....	Posey.....	Jno. Chappellsmith..	3, 4, 9, 10, 17, 22, 23	90 °	30	47 °	75.9 °	0.85 <i>In.</i>
Rockville.....	Park.....	Miss M. A. Anderson..	16	89	29	44	72.3	2.13
ILLINOIS.								
Peoria.....	Peoria.....	Frederick Brendel..	17	93	29	46	75.2	2.24
Galesburg.....	Knox.....	Prof. W. Livingston..	16	93	29	46	73.0	1.30
Winnebago.....	Winnebago.....	J. W. Tolman.....	16	98	29	41	70.7	2.24
Ottawa.....	La Salle.....	Emily H. Merwin.....	16	98	29	40	73.0	3.11
Upper Alton.....	Madison.....	Mrs. A. C. Tribble....	16, 19	88	30	42	.....	1.50
Augusta.....	Hancock.....	S. B. Mead.....	1, 16, 23	91	29, 30	43	72.8	2.45
Manchester.....	Scott.....	Dr. John Grant and Miss E. Grant.....	16, 23	92	29	44	72.6	1.97
Waverley.....	Morgan.....	Timothy Dudley....	16	95	29, 30	45	73.2	4.10
MISSOURI.								
Canton.....	Lewis.....	George P. Ray.....	16	102	29	42	76.9	3.34
Harrisonville.....	Cass.....	John Christian.....	22	100	24	54	78.4	.....
WISCONSIN.								
Milwaukee.....	Milwaukee.....	I. A. Lapham.....	1, 4, 8, 19	91	30	41	69.0	2.62
Beloit.....	Rock.....	Henry D. Porter.....	16	93	29	42	69.5	3.58
IOWA.								
Iowa City.....	Johnson.....	Prof. T. S. Parvin..	16, 17	94	29	36	76.4	2.44
Lyons.....	Clinton.....	Dr. P. J. Farnsworth..	16	95	30	40	73.0	2.65
Dubuque.....	Dubuque.....	Asa Horr, M.D.....	16	96	30	46	72.3	3.27
Independence.....	Buchanan.....	A. C. Wheaton.....	4	98	29	42	72.4	9.00
Pleasant Plain.....	Jefferson.....	T. McConnel.....	4	104	29	40	75.5	5.51
Algona.....	Kossuth.....	F. McCoy, M.D., and Miss L. McCoy.....	7	95	30	43	69.7	10.06
Muscatine.....	Muscatine.....	Suel Foster.....	17	96	29	41	.....	3.40
Fort Madison.....	Lee.....	Daniel McCready....	19	96	29	41	74.5	5.57
MINNESOTA.								
St. Paul.....	Ramsey.....	A. B. Patieson.....	18	91	29	39	67.0	3.19
NEBRASKA.								
Fontenelle.....	Washington.....	John Evans.....	16	96	29	35	72.5	2.70
KANSAS.								
Manhattan.....	Riley.....	H. L. Dennison.....	20, 23	96	30	54	78.6	6.21
Fort Riley.....	.....	Fred. P. Drew, M.D....	23	99	24	54	80.2	5.71
Lawrence.....	Douglas.....	Arthur N. Fuller.....	5, 23	99	29	45	74.7	2.25

The following table shows the average temperature and fall of rain, (in inches and tenths,) for the month of August, for each of the years named, and for the five years collectively first named, and the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for the 5 years.		Averages for 1863.	
		Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	6	62.4	3.9	63.8	8.2	64.2	5.6	63.6	4.6	66.9	2.5	64.2	4.9	66.8	3.31
New Hampshire	4	64.9	2.5	65.9	*	66.6	5.9	65.1	4.1	58.7	3.4	64.3	4.0	66.4	4.83
Vermont	4	62.4	2.9	64.8	8.4	64.9	5.9	65.5	3.6	66.5	2.4	64.8	4.7	67.6	4.63
Massachusetts	12	66.1	3.2	65.5	11.1	67.4	5.1	66.0	5.1	66.8	4.6	66.4	5.8	69.8	4.56
Rhode Island	1	67.9	2.0	69.8	5.6	66.8	4.8	66.4	8.2	69.2	3.7	68.0	4.9	70.3	4.59
Connecticut	4	67.4	2.0	67.6	10.7	68.6	5.0	66.5	4.4	67.3	7.0	67.5	5.8	70.3	5.57
New York	16	67.9	2.4	66.1	4.8	61.0	4.7	69.4	3.5	68.8	3.8	66.7	3.8	69.6	5.39
New Jersey	4	70.7	2.9	70.3	4.8	72.3	6.6	70.4	3.7	70.0	4.6	70.7	4.5	76.6	4.13
Pennsylvania	20	71.4	3.8	69.6	4.1	69.6	4.8	71.5	3.4	71.2	4.1	70.6	4.0	73.6	2.61
Maryland	4	72.6	5.7	70.1	5.1	72.5	5.9	73.2	2.6	73.2	2.7	72.4	4.4	78.5	0.51
District of Columbia ..	1	74.9	2.9	72.6	4.2	73.5	10.2	74.7	4.8	74.2	3.2	74.0	5.1	78.2	0.86
Kentucky	3	75.4	4.4	72.6	3.5	73.3	3.2	75.6	2.3	72.6	6.4	73.9	4.0	-----	-----
Ohio	18	72.2	4.1	68.3	1.9	69.9	3.6	71.5	4.4	71.3	3.9	70.6	3.6	72.8	2.66
Michigan	9	68.5	2.3	65.0	1.4	66.7	4.5	69.2	4.0	69.0	2.6	67.7	3.0	70.3	5.57
Indiana	4	74.0	4.4	71.3	2.9	72.9	4.3	73.7	4.0	73.6	4.3	73.1	4.0	73.6	2.64
Illinois	14	71.7	4.1	70.4	2.8	72.7	4.5	72.5	3.0	72.2	2.5	71.9	3.4	72.9	2.37
Missouri	2	74.4	6.5	74.0	4.4	73.4	3.5	78.7	2.9	76.1	2.9	75.3	4.0	77.7	3.34
Wisconsin	9	67.7	1.8	66.9	1.9	67.4	3.6	68.9	3.6	69.5	1.8	68.1	2.5	69.3	3.10
Iowa	8	68.6	3.3	67.8	1.6	71.0	5.8	71.9	3.3	72.5	1.8	70.4	3.2	74.9	5.24
Minnesota	3	63.4	10.5	63.4	2.7	67.8	3.9	68.6	3.9	66.2	4.1	65.9	5.0	67.0	3.19
Nebraska Territory ..	3	-----	-----	-----	-----	-----	10.1	73.6	1.9	73.8	1.8	73.7	4.4	72.5	2.70
Kansas	3	-----	-----	-----	-----	75.8	3.9	75.9	4.0	75.9	5.6	75.9	4.5	77.8	4.72
California	2	-----	0.0	69.6	0.0	61.7	0.0	69.2	0.1	71.3	0.0	68.0	0.0	-----	-----

* (19.75)

MONTHLY REPORT
OF THE
CONDITION OF THE CROPS.
FOR SEPTEMBER, 1863.

DEPARTMENT OF AGRICULTURE,
Washington, October, 1863.

In submitting his report of the condition of the crops for the month of September, 1863, the Commissioner of Agriculture gratefully acknowledges the active co-operation of the farmers, and the various agricultural societies, in the transmission of statistical and other information pertaining to the crops of the country, which add so much to the importance of these reports.

In view of the great interests connected with this department, and which demand its fostering care, he feels impelled to invite their attention to some considerations which have not, as he believes, been heretofore suggested, and which have an important bearing upon the advancement of those interests. The inexhaustible resources at our disposal, our wide-spread prairies and alluvial valleys, afford the means of subsistence to many millions, and these means will continue largely to increase as we add to the improvements of the soil and its culture, and multiply the facilities for a successful prosecution of the art of husbandry.

The subsistence of our immense army and navy, and the revenues on which our government has not relied in vain for payment of its immense current expenses for crushing out this causeless and unnatural rebellion, all are derived, directly and indirectly, from the productions of our soil. And the more and the earlier we can increase those productions by the appliances of science and art, and by introducing improved seeds and valuable articles of produce, the easier and the sooner will the debt be extinguished which that wicked rebellion has made necessary to preserve this government and nation. By such improvements, not only will the produce per acre be increased, but the value of the products themselves will be enhanced, and we shall be the better enabled to compete with other nations in supplying food to the millions of Europe; thus gathering wealth in return and making our country more than ever the granary of the world, and our farmers the stay and staff of our government in all the vicissitudes of peace or war.

It is the aim of this department to do what it can to promulgate the knowledge which is indispensable to the prosperity of the farmer and producer as

sure means of promoting the general good of the country. Everything which has a tendency to benefit the tillers of the soil, is an advantage to the whole community, for their interests are reciprocal and inseparable; and as the general good is promoted by the fostering of the agricultural interest, it becomes the duty of those who are entrusted with the management and direction of public affairs to give special attention to this great interest which lies at the foundation of our national greatness.

It is undoubtedly true that the agricultural is the most important interest of the country, and that it is an advantage to the government to protect the industry of the people, especially when directed to so indispensable an end as the means of subsistence. It is also true that those who are engaged in this branch of industry outnumber all the other classes put together, and yet comparatively little has been done in the way of legislation to encourage and promote the success of agriculture. It is believed that one reason why the subject has met with so little attention at the hands of the national legislature is, that their constituency have not urged it upon them as zealously as a proper regard to the subject demanded. And the object of the commissioner in now adverting to it is to induce those who are immediately interested in the subject to press as an argument upon their representatives the importance and the justice of bestowing upon this great interest that consideration which a due regard for the general welfare demands.

A thorough system of scientific and practical education in all the branches of agriculture is certainly of the highest importance, and while the department is doing what it can with the means at its disposal in the promotion of knowledge on the subject, it is believed that the establishment by the government of an experimental farm and agricultural school would afford large and better facilities for the acquirement of a thorough education, which is so indispensable to a successful prosecution of the profession of husbandry. We have only to look to the activity with which agricultural schools have been founded on the continent of Europe, and especially in Great Britain, if we desire to ascertain the estimation in which such institutions are held there.

Few of the leading German states have neglected to provide, at public expense, some institution or other designed for the improvement of agriculture.

In the kingdom of Prussia there are several well-sustained schools with extensive model farms, comprising, in the aggregate, over five thousand acres of land. Botanic gardens and valuable herbariums are also provided, with other facilities for the education of youths designed for husbandry.

About twenty years since the Emperor of Russia established a school in the neighborhood of St. Petersburg, which has been attended with much success.

The imperial schools of France have exerted a wide influence in the agricultural progress of that country. Austria, Bavaria, Saxony, all have their institutions for the increase and dissemination of agricultural knowledge, and the English government has been constant and decidedly successful in its support

of schools established for the education of the farmer and the protection of his rights.

Each congressional district could be represented by farmers eager to enlarge the boundaries of their information, and the aspiring youth upon whom the country depends for the development of its resources in the future, could be trained up to usefulness and honor in the most material of industrial pursuits.

As this project would require the authority of Congress, and an appropriation of the means of carrying it into execution, it is suggested, especially to those immediately interested in agriculture, and to all of our citizens who are benefited by an advancement of this interest, to do all they can in influencing their representatives to give to the subject that consideration which its importance demands, and from which the most beneficial results will certainly ensue; and the commissioner will be pleased to receive an expression of the opinions of those interested in this subject. The commissioner derives great encouragement in the advancement of these views by the very general interest manifested by the farmers of the country in the meteorological and other scientific portions of these reports prepared from the observations of the Smithsonian Institution, showing their high appreciation of the employment of scientific education in forwarding agricultural interests. An examination of this part of the report will show not only the temperature for the past month, compared with previous years, the amount of rain, but also the course and extent of those severe and unusual frosts which swept so severely over some portions of the country. Though destruction fell so heavily on some of our crops, yet all the returns show great cause for thankfulness to the Giver of all good, for a most abundant harvest.

ISAAC NEWTON,

Commissioner.

THE FOREIGN MARKETS FOR AMERICAN BREADSTUFFS; THE AMOUNT OF THE PRINCIPAL SUMMER AND FALL BREADSTUFF CROPS OF THE LOYAL STATES FOR THE YEARS 1862 AND 1863; THE AMOUNT OF THEIR EXPORT AND HOME CONSUMPTION; THE ENGLISH CROPS FOR 1863; THE PROBABLE FOREIGN AND HOME DEMAND FOR 1864.

In this article will be found estimates of the amount of the crops of our breadstuffs for the years 1862 and 1863. In laying them before the public, the Commissioner of Agriculture deems it proper to give, in connexion with them, the nature of the foreign and home markets for them, that the American farmer may know the character and value of those markets in which are consumed the great crops produced by him. For with such knowledge he may the better estimate the value of the crops, and give a more intelligent direction to his industry. Hence the following topics are considered in this article :

1. The foreign production of breadstuffs.
2. The English market for breadstuffs; its average annual demand, and that for 1860, 1861, 1862, and 1863.
3. The export of breadstuffs from the United States for the same years, and its general annual average, both in value and amount.
4. Summary of the tables of these.
5. Estimates of the summer and fall crops of breadstuffs produced by the loyal States in the years 1862 and 1863.
6. Deductions from the tables of these.
7. The English harvest for 1863.

THE FOREIGN PRODUCTION OF BREADSTUFFS.

Although the *exports* of our breadstuffs are very small when their amount is compared with the entire production of them in the United States, yet, when that export is a surplus, it relieves the home market from a pressure that would otherwise bear heavily upon it. To illustrate the effect of a surplus on home prices, let us suppose a hundred houses are built for rent, at \$100 each per annum, and that there are but ninety families to occupy them. The owners of the ten unoccupied ones, to induce ten of the ninety families to rent them, would offer them at \$90, and as soon as that would be known, the owners of the ninety occupied houses would offer them at the same rate to induce the renters to remain. Then the ten unoccupied would be offered at \$80, and so the process of reduction would go on until the cheapness of rent would cause ten additional families to emigrate to the town in which these houses are built.

So with our breadstuffs and meats. A tenth of production beyond the home consumption would have a like depressing influence on the home market, until the cheapness of prices would lead to a greater consumption, and thus the home market be relieved. Hence an export trade is of far greater importance than its mere amount would indicate, when compared with the amount of production.

That farmers may understand the character of the foreign markets for their breadstuffs, we place before them in this number of our monthly report many interesting statistics relative to the English market, for it is our principal purchaser of breadstuffs, and its trade in them discloses the trade of the European countries.

The table below shows the countries from which Great Britain obtains its supplies of breadstuffs, and the per cent. obtained from each. The amount of grain is given in quarters, being a quarter of a ton of 2,240 pounds. The English quarter is, therefore, 560 pounds, equal to 8 English bushels of 70 pounds each, or $9\frac{1}{2}$ American bushels of 60 pounds each.

THE DEPENDENCE OF ENGLAND ON FOREIGN COUNTRIES.

The following is an official statement of the importations of wheat into Great Britain for six months, for which we are indebted to the courtesy of Mr. Homans, of the Treasury Department :

Half year ending June 30.

	1861.	1862.	1863.
	<i>Quarters.</i>	<i>Quarters.</i>	<i>Quarters.</i>
Total importation.....	3,664,529	3,449,545	2,489,552
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Russia.....	14	11½	14
Prussia.....	15	18½	23
Denmark.....	4	1½	2½
Mecklenburg.....	2½	½	2
Hanse Towns.....	4½	3	1½
France.....	5	4	½
Turkey and Principalities.....	5	4	2½
Egypt.....	6	12½	15
United States.....	32	33	35
British North America.....	1	4½	2
Other countries.....	11	7	2
Total.....	100	100	100

FLOUR.

Half year ending June 30.

	1861.	1862.	1863.
	<i>Barrels.</i>	<i>Barrels.</i>	<i>Barrels.</i>
Total importation.....	3,677,460	3,562,717	2,425,255
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Hanse Towns.....	4½	3	7
France.....	12	4	27
United States.....	64	74	57
British North America.....	2½	8	5½
Other countries.....	17	11	3½
Total.....	100	100	100

Of grain, other than wheat, the importations this year, and especially of barley and oats, have been extremely large. In the first half of 1861 the aggregate was 3,613,080 quarters; in the same period of 1862 it was 2,827,816 quarters; and it is now 4,012,925 quarters.

It will be seen from this table that three nations are competitors with the United States in the sale of *wheat* to England: Russia, Prussia, and Egypt; and in *flour*, one only: France.

It is not, therefore, without interest to examine into the wheat production of these nations.

1. *Russia*.—This is one of the best countries on the globe for wheat production. The lands most favorable are those of Poland and Little Russia. The wheats of the first find their market ports in the cities of Stettin, Memel, and Dantzic, on the Baltic, and those of the last, at Odessa, on the Black Sea. The extent of the wheat district of Little Russia, according to Mr. Claxton, our consul at Moscow, is about 1,200 miles in length by 400 in breadth. "The grain fields," he remarks, "extend uninterruptedly for hundreds of square miles, and hour after hour, though whisked along with the best speed of four horses, nothing can be seen on the road from Koorsk to Khumurchuck but endless seas of rustling wheat, or tall waving rye." We have no statistics of Russian production; it is, however, sufficient to supply not only its own wants, but those of Europe also.

But products, although easily and abundantly raised, must be cheaply marketed. This is not the case with Russian wheat. The long sea voyage from Odessa to England injures the grain, and in Homan's *Encyclopedia of Commerce* this remark is found: "When this voyage is made in summer, unless the wheat be very superior, and be shipped in exceedingly good order, it is almost sure to heat, and has sometimes, indeed, been injured to such a degree as to require to be dug from the hold with pickaxes." The cost of shipping a bushel of wheat from Odessa to London is about forty-three cents per American bushel.

But where a limited commerce exists between two nations the cost of shipment is usually much greater than where it is otherwise. An export can be made cheaply as to freights, when the return cargo will be profitable.

In all these things the United States has great advantages over Russia. The wheat of the northwest can be taken to England by a short voyage, and in a climate so favorable that the grain is never injured. The cost of shipment to Liverpool is about fourteen cents per bushel from New York.

The great trade between the two countries furnishes the best facilities for cheap transportation. Hence it is that, with all its great advantages in production, Russia sends directly to the English market only about one-third the wheat sent by our country.

2. *Prussia*.—This nation is the chief competitor with the United States. It furnishes twenty-three per cent. against thirty-five per cent. by us. But yet its own production is not much greater than its consumption. It raises about 35,000,000 bushels of wheat, and having seventeen millions of population, a consumption of only two bushels per head, would leave none for exportation. The people live very extensively on rye and potatoes; and what amount of wheat is left for exportation cannot, in the absence of statistical knowledge, be determined. It cannot be much, as may be inferred from the following remarks of McGregor:

"We have no satisfactory account of the agricultural produce of the Prussian states. The exportations of grain show, however, that the production of good harvests is greater than consumption. But it must be taken into account that a greater part of the grain exported from the other states, and from Poland, passes through Prussia."

These "other states" are the German members of the Zollverein; and hence the exports of Prussian wheat to England represent Germanic and Russian production more than Prussian.

3. *Egypt*.—The exports of wheat from Egypt to England present a rapid increase, from six per cent. in 1861, to fifteen per cent. in 1863. This is at-

tributable, we suppose, to the great attention now given in that country to the restoration of its ancient agriculture. Wherever irrigation can be effected in Egypt the most abundant crops are secured. Our knowledge of the extent of the progress of these recent improvements is too insufficient to enable us to determine the future increase of these Egyptian exports of wheat.

4. The exports of *flour* from France to England do not present a rivalry that need be much regarded, for it is occasional, rather than continual, as France has not, usually, much of a surplus of wheat. For the six months in 1862, it supplied England with but 4 per cent. of its imports of flour, against 74 per cent. sent from the United States.

As a general remark, it may be said that outside of Russian production no rivalry need be feared by us for the possession of the English market for breadstuffs, for German manufactures are so rapidly increasing that the surplus wheat production of the German states will soon be required for home consumption. But the exports of wheat from Prussia and Russia will always have a material influence on American prices, and must limit our exports of breadstuffs whenever their value here goes much beyond what they have been during the fiscal year of 1862. With good crops, and his superior market facilities, the American farmer may always maintain his supremacy in the English market. But with such an immense foreign trade in agricultural production as the United States has, and so much affected by European production, it is a matter to be regretted that we possess so limited knowledge of the latter. This arises from the fact that Europe takes no reliable statistics of its agriculture. A system, however, could be established for procuring reliable information of it, through our foreign consuls, by a person competent to devise it, after a careful and an intelligent personal examination of European agriculture; its character, extent, market facilities, commercial connexions, and home consumption.

THE ENGLISH MARKET FOR BREADSTUFFS; ITS AVERAGE ANNUAL DEMAND, AND THAT FOR 1860, 1861, 1862, AND 1863.

As this market receives the far greater part of our exports of breadstuffs, it is important, both to the shipper and farmer, that its nature and extent should be known. It will be found to be very fluctuating. In 1792 England ceased to export breadstuffs, and has increased its imports of them, as its manufactures and mining increased, and its harvests fluctuated. The following table shows the amount of grain, and flour and meal reduced to quarters, imported from 1847 to 1861, inclusive. The average annual amount of all will be seen to be 10,101,316 quarters, or 94,278,949 American bushels.

Table of imports of grain and flour and meal, in quarters, into England, from 1847 to 1861.

Years.	Grain.	Flour and meal
	<i>Quarters.</i>	<i>Quarters.</i>
1847	9, 436, 677	2, 476, 187
1848	6, 945, 492	582, 980
1849	9, 651, 956	1, 017, 705
1850	7, 920, 864	1, 098, 726
1851	8, 093, 401	1, 524, 625
1852	6, 641, 729	1, 104, 940
1853	8, 847, 608	1, 325, 527
1854	6, 850, 500	1, 059, 044
1855	5, 729, 241	549, 572
1856	8, 197, 253	1, 142, 172

Table of the quantities of wheat and other grains, and of the flour and meal of wheat and other grains, imported into Great Britain during the year 1861.

	Wheat.	Other grains.	Wheat flour	Other flour.
	Quarters.	Quarters.	Cwt.	Cwt.
Russia, northern ports.....	156,260	511,840	21,854	.....
Russia, southern ports.....	885,201	396,888	134	.....
Sweden.....	15,131	595,504	627	.....
Denmark and the Duchies.....	228,157	576,876	20,357	.....
Prussia.....	1,027,733	502,958	7,250	.....
Hanse Towns.....	214,146	194,898	279,609	.....
Germany, other parts.....	129,929	108,146	12,468	.....
Holland.....	11,181	150,209	1,937	.....
France.....	180,903	107,645	460,775	.....
Spain.....	164,404	2,760	467,872	.....
Italian States.....	206,929	106,694	103,166	.....
Wallachia and Moldavia.....	136,498	489,445	.....	.....
Turkish Dominions, other.....	94,910	754,394	.....	.....
Egypt.....	339,811	526,089	1,573	.....
British North America.....	549,525	378,164	805,339	.....
United States.....	2,507,744	1,779,652	3,794,865	.....
Other countries.....	64,353	184,077	175,112	.....
			6,152,938	97,421
Total quarters.....	6,912,815	7,366,239	1,757,982	57,878
Equal in American bushels to....	64,529,607	61,751,470	15,707,835	540,194

The deficit of the years 1860 and 1861 is very great, and of 1862, not much less; but we have no statistical returns of 1862 and 1863, except for the first six months of each of these years. These will be found in the following table, from which it will be seen that the deficit of 1863 is much less than that of 1862:

Table of the value of imports into Great Britain of flour, wheat, and Indian corn, for six months, ending June 30 of the years 1862 and 1863.

	1862.			1863.		
	Flour.	Wheat.	Indian corn.	Flour.	Wheat.	Indian corn.
Russia.....		\$5,016,345	.....		\$8,713,960	.....
Prussia.....		8,868,145	.....		7,306,800	.....
Denmark.....		806,515	.....		758,250	.....
Mecklenburg.....		364,660	.....		586,580	.....
Hanse Towns.....	\$439,165	1,390,060	.....	\$610,315	469,510	.....
France.....	267,205	1,808,355	.....	2,644,545	151,715	.....
Turkey, &c.....		1,440,735	.....		613,290	.....
Egypt.....		3,873,130	.....		3,090,275	.....
United States.....	9,709,525	15,337,745	\$8,410,030	4,520,080	9,892,595	\$8,438,205
British North America.....	1,049,040	1,781,275	.....	413,085	563,785	.....
Other countries.....	1,721,615	2,978,510	.....	322,380	594,000	.....
	13,186,550	43,663,475	8,410,030	8,510,405	27,740,760	8,438,205

In order to present to our readers a more complete view of the importance of the English market for breadstuffs, we give the following table, showing the *value* of the imports of these for the eight years prior to 1862 :

Table of the value of imports into Great Britain of wheat and other grains, and of flour of wheat and of other grains, for eight years, from 1854 to 1861, inclusive.

	1854.	1855.	1856.	1857.
Wheat.....	\$58,468,685	\$48,397,890	\$63,581,745	\$47,815,495
Other grains.....	30,325,945	27,574,680	31,172,320	39,255,835
Flour of wheat.....	19,852,745	11,520,530	20,388,640	9,818,110
Flour of other grains.....	154,340	50,400	54,405	13,395
Total.....	108,801,415	87,543,500	115,197,110	96,902,835
	1858.	1859.	1860.	1861.
Wheat.....	\$45,252,335	\$43,567,660	\$82,770,415	\$95,207,320
Other grains.....	39,541,340	34,673,800	53,769,975	54,306,485
Flour of wheat.....	15,948,180	11,961,475	21,602,790	24,728,175
Flour of other grains.....	21,350	7,380	216,410	301,215
Total.....	100,763,205	90,211,315	158,359,590	174,543,195

This table exhibits not only the fluctuating nature of the English market for breadstuffs, but its greatness also. The relation our country bears to it cannot be too thoroughly understood. Hence the following tables of our exports of breadstuffs are given, to show by the *first*, their *VALUE* generally, and by the *second*, their *AMOUNT*, and to what countries sent.

EXPORTS OF BREADSTUFFS FROM THE UNITED STATES.

Having shown the extent of the demand for breadstuffs in the British market, and the per cent., and the amount of the exports of the United States to it, we lay before our readers the *amount* and *value* of our exports of flour, wheat, and corn, for the three years of 1860, '61, and '62, during which the deficit of England was so much greater than usual.

Table of exports of flour, wheat, and corn, from the United States, for the years 1860, 1861, and 1862.

	1860.		1861.		1862.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Flour.....barrels..	2,611,596	\$15,448,507	4,323,756	\$24,645,849	4,882,033	\$27,534,677
Wheat.....bushels..	4,155,153	4,076,704	31,238,057	38,313,624	37,289,572	42,573,295
Corn.....do.....	3,314,155	2,399,808	10,678,244	6,890,865	18,904,898	10,387,383
Total value.....	.....	21,925,019	.....	69,850,338	.....	80,495,355

The following tables have been furnished the Department of Agriculture by David Ogden, of New York, to whom we return our thanks for his kind attentions. The *first* exhibits the exports of flour, meal, wheat, and corn from the United States to Great Britain and Ireland for seventeen years, ending with the 1st of September; the *second* shows our exports of flour, wheat, corn, and rye to the continent of Europe for nine years, ending the same time; and the *third* exhibits the exports of Canada to Great Britain and Ireland, of various agricultural products for 1862 and 1863.

Export of breadstuffs to Great Britain and Ireland from September 1, 1862, to September 1, 1863.

From—	To date.	Flour.	Corn meal.	Wheat.	Corn.
		Barrels.	Barrels.	Bushels.	Bushels.
New York.....	Sept. 1, 1863.	1, 164, 119	1, 064	20, 471, 460	9, 836, 826
New Orleans	1863.				
Philadelphia.....	Sept. 1, 1863.	121, 927	33	1, 134, 318	201, 368
Baltimore	Sept. 1, 1863.	46, 553		306, 105	270, 074
Boston	Sept. 1, 1863.	46, 123	50		16, 028
California and other ports.....	Sept. 1, 1863.	100, 691		1, 255, 307	10, 000
Total from Sept. 1, 1862, to Sept. 1, 1863.....		1, 479, 413	1, 147	23, 167, 190	10, 334, 356
“ “ 1, 1861, “ 1, 1862.....		2, 672, 515	1, 124	25, 754, 709	14, 084, 168
“ “ 1, 1860, “ 1, 1861.....		2, 561, 661	4, 416	25, 553, 370	11, 705, 034
“ “ 1, 1859, “ 1, 1860.....		717, 156	944	4, 938, 714	2, 221, 857
“ “ 1, 1858, “ 1, 1859.....		106, 457	58	439, 010	342, 013
“ “ 1, 1857, “ 1, 1858.....		1, 295, 430	143	6, 555, 643	3, 317, 802
“ “ 1, 1856, “ 1, 1857.....		849, 600	685	7, 479, 401	4, 746, 278
“ “ 1, 1855, “ 1, 1856.....		1, 641, 265	6, 816	7, 956, 406	6, 731, 161
“ “ 1, 1854, “ 1, 1855.....		175, 209	4, 768	324, 427	6, 679, 138
“ “ 1, 1853, “ 1, 1854.....		1, 846, 920	41, 726	6, 038, 003	6, 049, 371
“ “ 1, 1852, “ 1, 1853.....		1, 600, 449	100	4, 283, 519	1, 425, 278
“ “ 1, 1851, “ 1, 1852.....		1, 427, 442	1, 680	2, 728, 442	1, 487, 398
“ “ 1, 1850, “ 1, 1851.....		1, 559, 584	5, 620	1, 496, 355	2, 205, 601
“ “ 1, 1849, “ 1, 1850.....		574, 757	6, 411	461, 276	4, 753, 358
“ “ 1, 1848, “ 1, 1849.....		1, 137, 556	82, 900	1, 140, 194	12, 685, 260
“ “ 1, 1847, “ 1, 1848.....		182, 583	108, 534	241, 300	4, 390, 226
“ “ 1, 1846, “ 1, 1847.....		3, 155, 845	844, 188	4, 000, 359	17, 157, 659
Total for 17 years.....		22, 983, 842	1, 111, 260	123, 098, 318	110, 315, 958
Annual average		1, 351, 932	65, 368	7, 241, 077	6, 489, 174

*Exports of the United States to the continent of Europe of flour, wheat, corn,
and rye.*

Date.	Flour.	Wheat.	Corn.	Rye.
	Barrels.	Bushels.	Bushels.	Bushels.
From Sept. 1, 1863, to Sept. 1, 1863.	213, 579	2, 343, 314	68, 957	435, 205
“ 1, 1861, “ 1, 1862.	626, 672	7, 617, 472	322, 074	1, 612, 926
“ 1, 1860, “ 1, 1861.	142, 129	3, 452, 496	101, 145	347, 258
“ 1, 1859, “ 1, 1860.	49, 243	178, 031	19, 358	.....
“ 1, 1858, “ 1, 1859.	51, 388	57, 845	25, 519	.....
“ 1, 1857, “ 1, 1858.	303, 100	390, 428	16, 848	13, 100
“ 1, 1856, “ 1, 1857.	483, 344	2, 875, 653	543, 590	216, 162
“ 1, 1855, “ 1, 1856.	748, 408	2, 610, 079	282, 083	1, 975, 178
“ 1, 1854, “ 1, 1855.	7, 763	4, 972	308, 428	35, 569
Total for 9 years.	2, 625, 626	19, 530, 290	1, 688, 002	4, 635, 398
Annual average	291, 736	2, 170, 032	187, 555	515, 044

Exports from Canada to Great Britain and Ireland, via St. Lawrence.

Date.	Flour.	Wheat.	Corn.	Peas.	Oats.	Oat meal.
	Barrels.	Bushels.	Bushels.	Bushels.	Bushels.	Barrels.
From Sept. 1, '63, to Sept. 1, '63.	687, 986	5, 722, 377	1, 578, 458	604, 999	9, 024	1, 020
From Sept. 1, '61, to Sept. 1, '62.	617, 308	6, 376, 905	2, 016, 040	822, 060	780, 756	7, 242

Summary of the above tables of exports.

From these tables we take the following summary, showing the *annual average* of the amount of exports of wheat and flour to England for the last 17 years—the flour being estimated in bushels of wheat—and also the amount of the same exported to the Continent :

Annual average exported to England since 1846, and to the Continent since 1854.

To England :

Flour, in bushels of wheat.....	6, 759, 660
Bushels of wheat.....	7, 241, 077

Total to England.....	14, 000, 737
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To the Continent :

Flour, in bushels of wheat.....	1, 458, 680
Bushels of wheat.....	2, 170, 032

Total to the Continent.....	3, 628, 712
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Total average to England and the Continent.....	17, 629, 449
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We also take from these tables the following exports of wheat and flour to England and the Continent *for the year ending September 1, 1863*—the flour being estimated in bushels of wheat:

To England :		
Flour, in bushels of wheat.....	7, 397, 065	
Bushels of wheat.....	23, 167, 190	
<hr/>		
Total exports of wheat to England.....		30, 564, 255
To the Continent :		
Flour, in bushels of wheat.....	1, 067, 850	
Bushels of wheat.....	2, 343, 314	
<hr/>		
Total exports of wheat to the Continent.....		3, 411, 164
<hr/>		
Total to England and the Continent.....		33, 975, 419
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From the same tables we have the following annual average of the *bushels of corn, and meal* changed to bushels of corn, at five bushels of corn to the barrel of meal, exported to England and the Continent :

Meal, in bushels of corn.....	326, 840	
Bushels of corn.....	6, 489, 174	
<hr/>		
To England.....	6, 816, 014	
To the Continent.....	187, 555	
<hr/>		
Total annual average to England and the Continent.....		7, 003, 569
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The following table shows the exports of meal and corn to the same countries during the year ending September 1, 1863 :

Meal, in bushels of corn.....	5, 735	
Bushels of corn.....	10, 334, 356	
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To England.....	10, 340, 091	
To the Continent.....	68, 957	
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Total bushels of corn to England and the Continent.....		10, 409, 048
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There have been exported, during the same year, to South American and other ports, the following :

Flour, in bushels of wheat.....	6, 625, 715	
Bushels of wheat.....	85, 174	
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Total wheat.....	6, 710, 889	
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Bushels of corn.....	599, 895	
Meal, in bushels of corn.....	671, 400	
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Total corn.....	1, 271, 294	
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Total exports for the year ending September 1, 1863.

Wheat:

To England and the Continent.....	33, 975, 419
To all other ports.....	6, 710, 889

Total bushels of wheat.....	40, 686, 308
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Corn:

To England and the Continent.....	10, 409, 048
To all other ports.....	1, 271, 294

Total bushels of corn.....	11, 680, 342
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ESTIMATES OF THE CROPS OF 1862 AND 1863.

Having ascertained the amount of wheat and corn exported, it is now necessary to determine the crops of 1862 and 1863, that the home consumption and foreign exports may be compared, and from these deduce the character of the domestic market for 1863 and 1864.

The four following tables exhibit the amounts of the principal summer and fall crops, of a cereal character. No one but a statistician can form any idea of the labor involved in their preparation, and none has been spared to render them reliably correct.

The estimate of the crop of 1862 has been based on the census returns for 1860. As the crop of 1859, on which they were made, was under an average, and that of 1862 much above it, allowances were made for this difference, varying in degree according as an extensive knowledge of the agriculture of the country dictated was proper; and also for the general per cent. increase of each of the several States. During the summer and fall the monthly circulars issued by this department to about two thousand correspondents have been arranged, as to their interrogatories, to obtaining reliable returns of the crops of this year. Since the disastrous frosts of August 30 and September 18, throughout the western States, these correspondents have been zealous in their voluntary duties, as evidenced, not only by their clear returns to the circulars, but also by numerous letters containing their opinions. The general results, as exhibited by the tables for the crops of 1863, sustain the correctness of their views. Knowing the importance of such an estimate, the department has well matured its opinions as to the character of the crop of 1863, and it is satisfied of the general correctness of the facts expressed by the tables.

Table showing the amounts of the leading summer cereal crops for 1863, based on returns to this department.

States.	Wheat.	Rye.	Barley.	Oats.
Maine	215, 734	165, 951	1, 002, 636	3, 364, 581
New Hampshire	255, 163	145, 830	127, 159	1, 345, 829
Vermont	452, 683	130, 976	94, 102	3, 950, 556
Massachusetts	129, 765	388, 085	151, 752	1, 327, 585
Rhode Island.....	1, 413	33, 911	46, 117	203, 192
Connecticut	59, 901	618, 762	20, 813	1, 764, 329
New York	13, 021, 650	5, 385, 268	4, 882, 778	43, 968, 916
New Jersey	1, 808, 128	1, 499, 497	29, 098	4, 902, 263
Pennsylvania.....	15, 654, 255	6, 843, 427	573, 174	34, 233, 936
Maryland	7, 208, 828	548, 011	19, 699	4, 072, 421

Table showing amounts of leading summer cereal crops for 1863—Continued.

States.	Wheat.	Rye.	Barley.	Oats.
Delaware	1,217,254	37,412	5,105	1,570,364
Kentucky	5,546,108	791,447	302,014	3,562,772
Ohio	28,742,963	863,232	1,399,086	12,024,028
Michigan	13,966,153	494,197	407,885	5,430,797
Indiana	20,292,160	411,343	311,191	5,531,630
Illinois	31,408,163	883,190	1,205,042	19,681,420
Missouri	2,853,621	219,947	171,377	2,128,522
Wisconsin	20,842,359	1,012,929	950,589	14,598,236
Iowa	12,649,807	122,392	599,432	7,761,141
Minnesota	2,634,975	179,791	156,412	2,053,848
Kansas	262,953	5,184	5,448	116,270
Nebraska Territory	180,000	2,000	5,446	267,939
California	11,664,203	15,505	5,293,442	1,057,592
Total, 1863	191,068,239	20,798,287	16,760,597	174,858,167
Total, 1862	189,993,500	21,254,956	17,781,464	172,520,997
	*1,074,739	†456,669	†1,020,867	*2,337,170

* Increase.

† Decrease.

Table showing the estimated amounts of the leading summer cereal crops for 1862.

States.	Wheat.	Rye.	Barley.	Oats.
Maine	350,815	184,389	1,002,636	3,738,423
New Hampshire	318,954	162,033	141,287	1,495,365
Vermont	502,981	130,976	94,102	4,389,506
Massachusetts	129,765	388,085	168,613	1,475,094
Rhode Island	1,413	33,911	51,241	253,990
Connecticut	59,901	618,762	20,813	1,603,936
New York	13,021,650	5,385,268	4,882,778	43,968,916
New Jersey	1,808,128	1,499,497	33,220	5,446,958
Pennsylvania	15,654,255	6,843,427	636,859	34,233,936
Maryland	6,553,480	608,901	21,887	4,524,912
Delaware	1,217,254	34,011	4,254	1,308,637
Kentucky	5,546,108	791,447	203,014	3,562,772
Ohio	30,796,032	1,079,040	1,512,525	10,930,935
Michigan	14,963,735	494,197	407,885	5,430,797
Indiana	20,292,160	444,695	345,767	5,028,755
Illinois	32,213,500	981,322	1,175,651	17,892,200
Missouri	3,170,690	393,262	171,377	2,660,653
Wisconsin	20,765,781	1,066,241	905,323	13,271,124
Iowa	10,541,506	111,266	544,939	7,055,583
Minnesota	2,927,749	155,323	156,412	2,934,067
Kansas	202,232	4,713	4,953	96,892
Nebraska Territory	150,000	2,000	2,486	159,954
California	8,805,411	15,505	5,293,442	1,057,592
Total	189,993,500	21,254,956	17,781,464	172,520,997

Table showing the amounts of the leading fall crops for 1863, based on returns to this department.

States.	Corn.	Buckwheat.	Potatoes.
Maine.....	1,855,285	452,693	5,949,642
New Hampshire.....	1,668,285	98,995	3,310,163
Vermont.....	1,743,522	233,906	4,118,825
Massachusetts.....	2,465,215	117,137	2,881,711
Rhode Island.....	458,912	3,871	435,084
Connecticut.....	2,265,818	234,032	1,649,834
New York.....	26,480,582	5,976,305	29,753,393
New Jersey.....	10,023,336	947,577	4,223,836
Pennsylvania.....	30,721,821	6,017,788	14,609,335
Maryland.....	11,555,938	218,405	1,213,707
Delaware.....	3,503,104	16,560	264,552
Kentucky.....	48,032,725	12,769	1,449,138
Ohio.....	57,433,802	909,027	3,740,718
Michigan.....	11,392,603	810,587	4,562,769
Indiana.....	58,034,661	331,018	3,177,178
Illinois.....	83,013,681	314,502	4,511,083
Missouri.....	43,743,295	109,375	1,306,492
Wisconsin.....	8,575,996	80,264	4,114,537
Iowa.....	34,538,276 ¹	221,219	2,880,549
Minnesota.....	2,390,057	27,677	1,892,749
Kansas.....	7,496,061	39,743	390,456
Nebraska Territory.....	1,292,750	4,932	135,810
California.....	478,169	14,850	1,298,474
Total.....	449,163,894	17,193,232	97,870,035

Table showing the estimated amounts of the principal fall crops for 1862.

States.	Corn.	Buckwheat.	Potatoes.
Maine.....	1,855,285	452,693	7,437,053
New Hampshire.....	1,668,285	98,995	4,137,704
Vermont.....	1,585,020	233,906	5,148,531
Massachusetts.....	2,465,215	123,302	3,201,901
Rhode Island.....	458,912	3,871	543,855
Connecticut.....	2,059,835	334,032	1,833,148
New York.....	24,073,257	5,976,305	33,059,235
New Jersey.....	10,023,336	1,052,863	4,693,151
Pennsylvania.....	30,721,821	6,686,431	14,609,335
Maryland.....	14,444,922	242,672	1,517,134
Delaware.....	3,892,337	18,399	377,931
Kentucky.....	48,032,725	14,187	131,739
Ohio.....	71,792,253	1,181,947	5,128,756
Michigan.....	15,190,137	900,652	5,264,733

Table showing estimated amounts of the principal fall crops, &c—Continued.

States.	Corn.	Buckwheat.	Potatoes.
Indiana	92,855,454	367,797	4,357,271
Illinois	138,356,135	431,336	6,444,404
Missouri	54,679,118	136,719	1,493,519
Wisconsin	10,087,053	84,527	4,840,631
Iowa	49,340,393	276,524	3,600,686
Minnesota	3,983,426	34,596	2,703,926
Kansas	6,814,601	44,158	354,960
Nebraska Territory	1,846,785	12,329	169,762
California	478,169	14,850	1,298,474
Total, 1862	586,704,474	18,722,995	114,533,118
Total, 1863	449,163,894	17,193,232	97,870,035
* Decrease	137,540,580	1,529,763	16,663,083

* This decrease may be lessened should the farmer find the corn better when he gathers it; but it will be virtually lessened by the greater economy which he will observe in feeding to his stock.

From the several preceding tables we have these deductions :

	<i>Bushels.</i>
<i>Wheat</i> crop for 1862	189,993,500
Exported	40,686,308
Domestic consumption	149,307,192
<i>Corn</i> crop for 1862	586,704,474
Exported	11,680,342
Domestic consumption	575,024,132

The relative value of the foreign and domestic markets is here seen.

On the supposition that the domestic consumption for 1863 and '64 will continue the same as in 1862-'63, the surplus for exportation would be as follows :

	<i>Bushels.</i>
<i>Wheat</i> crop for 1863	191,068,239
Domestic consumption	149,307,192
For export	41,761,047
<i>Corn</i> crop for 1863	449,163,894
Domestic consumption	575,024,132
Deficiency	125,860,238

It is obvious that so great a deficiency in a cereal so largely used as a bread must increase the domestic consumption of wheat, and thus lessen the amount of that product for exportation. More especially must this be the case when there is a deficit also in the following crops: Rye, 456,669 bushels; barley,

1,020,867 bushels; buckwheat, 1,529,762 bushels; potatoes, 16,663,083 bushels; total, 19,670,381 bushels.

What will be the probable demand on the United States for its breadstuffs during the next twelve months becomes an important inquiry to every citizen. We have seen that our chief market for them is in England, and its demand may be inferred from the character of its crops.

THE ENGLISH HARVEST OF 1863.

Although the greatly diminished fall crops of our country make the foreign demand for our breadstuffs of less interest than usual, yet as decreased exports will advance the market value of gold, the country must spare every bushel of grain it possibly can to prevent such advance, or it must diminish the consumption of imports to lessen the demand for gold. Hence, still, the condition of the English market is of much interest to us.

We have seen the fluctuating character of the English market for breadstuffs, and that its deficit was unusually great in 1861 and 1862, and more than usually great in 1863. But all accounts of the English harvest since the middle of August, when it commenced, go to show that the crops just harvested have been unusually large; and that the demand will fluctuate back to one of its lowest points. Some portion of the harvest time was unfavorable on account of rain, but the crops were secured without much injury; a discoloration of a part of the grain was the most of its extent. The London Times of September 21 contains a good many notices of the conclusion of the harvest operations, and we refer briefly to a few of them to exhibit their general character.

“Devonshire.”—The weather of last week favorable; a good deal of barley, slightly damaged by the wet, was harvested in much better condition than expected. The root crops are very fine and abundant, and potatoes are a prolific crop.”

“Dundee.”—Harvest operations drawing to a close; the weather all that could be desired; the quality of the new crop improves on further acquaintance, and farmers are generally satisfied with both the grain and the green crops.”

“At Cheltenham market, on Thursday, the trade was again in a very depressed state, and prices were fully 3 shillings (72 cents) per quarter (9½ American bushels) in favor of buyers.”

“Grantham.”—The yield of both wheat and barley is large.”

“Leicester.”—The demand was inactive at 48 to 72 cents per quarter less money.”

“Chesterfield.”—The weather during the week has been finer, and most of the wheat left out has been got in, though a considerable quantity has become damaged by sprouting.”

“Malton.”—Weather good; wheat in good condition; the supply in market great to-day, and freely offered at a reduction of last week's rates of fully four shillings (ninety-six cents) per quarter.”

A more recent account of the English harvest states: “Since our last a considerable quantity of rain has fallen, but owing to the great progress already made with the harvest, it has had no further effect upon the trade than to cause a slightly firmer feeling here, (London,) as most of the country markets are again reported lower.” The price had advanced eighteen cents per quarter—about two cents per American bushel.

The English prices of wheat in September of each of these years have been as follows: 1860, \$1 62 per American bushel; 1861, \$1 45; 1862, \$1 40; and 1863, \$1 16.

The present price, and the above accounts of the excellence of the English harvest, present no prospect of an unusual foreign demand for our breadstuffs

during the coming year. That demand will not likely be greater than the general average of English importation.

THE HOME MARKET.

Under these circumstances it is important to see what will be the condition of the home market. The elements of this market are found in that manufacturing and commercial industry briefly alluded to in our first monthly report when showing the billions of dollars which each of these interests had invested in its operations. What will be the extent of those operations during the coming year is not easily determined, because the condition of the country is changing, from the existence and the progress of the war. It is easily enough seen that woollen manufactures will continue to increase to the full extent of the supply of wool, to fill the void created by the absence of cotton cloths. In proportion as the prospect of exports of meats and breadstuffs is diminished, the greater will be the advance in gold, but at the same time such advance will check importations, and induce a greater demand for home manufactures. The effect will be to increase the home demand for breadstuffs. This fact, together with the general prosperity, will sustain and create a greater quantity of manufactures supplying the ordinary wants of the people. The government may diminish its operations in certain branches of manufacture. There may be a less number of vessels built, a less number of cannon made, and fewer iron-clads constructed than in 1863; the high prices of labor and materials may check building, and limit much of that expenditure which looks more to the comfort of living than the prosecution of business, but the increase in these general manufactures will more than compensate for all decrease. Every indication points to an increased home demand for our breadstuffs.

THE CURRENCY.

The exportation of our breadstuffs may be hastened or retarded by the condition of our currency, and domestic enterprise may be quickened or paralyzed by the effects of the same cause upon the home market. If an irredeemable currency is put forth in immense quantities, as now in the rebel States, the premium on gold must become so great as to induce heavy exportations of products in preference to purchasing gold to pay for imports. It may even so unsettle the business of a country as to form a serious check to industry by inducing capitalists to invest in landed estates rather than labor-employing business; hence the condition of the currency is always to be considered in connexion with the consumption and export of breadstuffs.

Our government sustains the expenditures of the war by the issue of paper money, which would soon become as worthless as that of the rebels were it issued in the same unlimited quantities, and without reasonable provision for its redemption. The extent of the issue, however, is limited to the amount of currency actually necessary for the transactions of business. It is constantly being returned to the treasury in payment of taxes, and by investments in bonds of the United States. These bonds, the principal and interest of which are payable in specie, can always be purchased with United States notes known as "greenbacks," precisely as with coin, and in ordinary times a hundred dollar six per cent. bond of the United States is worth more than a hundred dollars in coin. Even a five per cent. bond, indeed, is worth more than an equal amount in gold dollars. It is plain, therefore, that so long as the credit of the government, represented by bonds, is well sustained, the same credit, represented by currency, cannot greatly depreciate. The practical question, then, is, Will this credit be sustained during the year 1864? Doubtless it will. The general prosperity of the country will enable the people to pay their taxes promptly,

and an additional motive to invest in bonds is created by the law which makes them the basis of national banking.

Mr. Webster was doubtless correct when he declared that no measure for the benefit of labor in England would be more efficient than the discharge of the national debt; and Secretary Chase was right when he said that the "idea of perpetual debt is not of American nativity, and should not be naturalized." There are conditions of society, however, in which national debt becomes a national necessity, and this condition for us has been created by the rebellion. Among conservative influences against rebellion, the strongest, perhaps, is that of wealth, for wealth is most endangered by change. Naturally, therefore, capital, seeing that it has no security but in stability, is compelled by regard for its own interest, even more than by considerations of patriotism, to array itself against the political heresy which asserts for each State the power to break up the government when it chooses. The mode by which capital supports government is by investment in government securities. Ordinarily it sells this support at as dear a rate as possible, but the creation of paper money in limited amounts has compelled it to be satisfied with much more moderate terms than it would otherwise have extorted. The paper money of the Union, commonly known as "greenbacks," links together by a common interest the government, the capitalists, and all the citizens who buy and sell. It becomes thus a sort of balance-wheel to the body politic, regulating the action and limiting the power of political leaders and parties.

Viewed in this light, Mr. Chase's financial and banking policy comes as near as possible to converting our national debt into a national blessing. It makes it furnish and support a currency more national, and sounder than any that can be furnished by State institutions. It makes of the bonds of the government firm supports to currency by establishing them as the bases of banking, and also strong bonds of union by diffusing their possession through all classes of the people. Thus his policy strengthens the government by the general interest of the people in the debt, and secures the debt by the general interest of the people in the government.

There is every reason, therefore, to believe that if the war be carried on with vigor and success, the currency, far from deteriorating, will improve during the coming year, and that those interests which create a home market for our agricultural products will suffer no derangement from a depreciation of currency.

ISAAC NEWTON,

Commissioner.

THE TABLES OF THE CONDITION OF THE CROPS FOR SEPTEMBER.

The frosts of August and September.—The destructive character of these two frosts demands a fuller notice than we usually give to the weather. In the last report we stated that the frost of August could not be as destructive as reported by some of our correspondents, and we based this opinion on the difference between a frost occasioned by unusual causes and at an early period, and one occurring at the usual time, when both the air and ground had become gradually cooled. This opinion was confirmed by many correspondents, and the fall crops would have been good had not the fatal frost of September 18th occurred. The continued cold air during the first part of September cooled the ground and prevented the crops from maturing, so that the frost of September was not only general, but found the crops in little more advanced condition than on the 30th of August.

Both these frosts seem to have had their origin in the same cause. The wind in the northwestern States blew strongly for several days before the 30th of August, commencing in the southwest and gradually veering round to the north. When directly north, it blew strongly over the middle of Lake Superior, along

the western edge of Lake Michigan, and the line dividing Indiana and Illinois, descending, as low as Tennessee. The frost of September appears to have followed the same direction. It was severe on the 18th in the northwestern States; but in the northeastern—in Maine, New Hampshire—on the 22d, and in New York on the 23d and 24th. The progress of both seems to have been more rapid from Minnesota into Kentucky than in an eastern direction. At Bardstown, Kentucky, there was a heavy frost on the night of the 18th of September, but more severe the ensuing night. It did not travel westward to any great extent, for it was not general in Missouri, and was light in Kansas. In Missouri it spread over the low timbered valleys, but left untouched the open and higher prairies. It followed the lines of the summer rains in that State, so that where fell the rains, there fell the frost, and as vegetation was advanced by the rains, the injuries from frost were light in that State. An observer in Illinois writes that the frost of August 30th “played some very curious freaks unknown in meteorology, and in defiance of all the known laws of that science.” In all the extensive correspondence that has reached us of the character and effects of these frosts, we see nothing remarkable, except their unknown cause. The winds, prevailing a few days before the 30th of August, seem to have blown south and eastward the warmer air then lying over the northern States, creating a vacuum that brought down the cold air of the north, from a point nearly directly north of the middle of Lake Superior, without having any great lateral extension. The Mississippi valley is open both in the north and south, and hence is subject to great changes of temperature. What produced these winds? Whether the heat was lowered by an extensive and connected series of hail and rain storms which fell about that time, as suggested by a correspondent, or whether it was by magnetic action, cannot be known until more extensive observations are made. But we have seen no phenomenon of these frosts that cannot be explained by our remarks on the frost of August in the report for that month. Heated and cold air, like warm and cold currents of water, do not readily commingle. The colder air, could we see it, would be found flowing down the hill-sides like water, on account of its greater weight and density, and settling in low places, over wide districts of country, as in Missouri, as it moves from the north to the south. A correspondent writes that its destruction was greatest at the foot of hill-sides; that a ridge to the northwest, which stopped the cold air as it came from the north, shielded the crops on the southeast side of it; and correspondents from Geauga county, Ohio, and Onondaga county, New York, state that the highlands in those counties were untouched. The elevation of the table lands of the first is 1,200 feet, and of the second 1,743 feet above the sea level.

But cold air, when forced by winds into a body of warm air, is divided, presenting alternate portions of cold and warm air, which do not readily mingle on account of their different pressures, and hence those phenomena so much noticed by our correspondents, of one field being destroyed, whilst another alongside of it escaped; of certain rows of corn or tobacco being killed, whilst others in the same field escaped. Sandy soils having greater heat, and more readily radiating it, better protect against frost than the colder and more dense clay soils. But a more complete account of these frosts will be found under the meteorological division of this report, and we have given this notice of them here, that the injuries sustained by the fall crops might be better understood.

Wheat.—This report gives the final returns of all our summer crops, and the view presented is highly favorable. Although the wheat crop was injured in Michigan *three-tenths*, or 30 per cent.; in Maine, New Hampshire, Vermont, and Minnesota, *two-tenths*; in Ohio and Illinois, *one and a third tenths*; and in New York, Kentucky, Maryland, Wisconsin, and Iowa, *one-tenth*, yet the aggregate crop of 1863 is greater than that of 1862. In 1862 it was 189,993,500 bushels, and in 1863, 191,068,239 bushels, being an increase of 1,074,739 bushels.

Rye.—The injuries to this crop are not great, being in Connecticut, Maryland, Ohio, Iowa, and Minnesota *one-tenth*, and in other States less. There is a small decrease in this crop. The yield in 1862 was 21,254,956 bushels, and in 1863, 20,798,287 bushels; decrease, 456,669 bushels.

Barley.—There is not much difference in the crop of barley between this and last year. It has been injured more than the rye crop, and hence the decrease is greater. It was injured *two-tenths* in New Hampshire, and *one-tenth* in Maine, Massachusetts, Rhode Island, Pennsylvania, Ohio, Michigan, and Minnesota. The crop of 1862 was 17,781,464 bushels, and in 1863, 16,760,597 bushels—a decrease of 1,020,867 bushels.

Oats.—This crop is injured *two-tenths* in Pennsylvania, Maryland, and Minnesota, and *one-tenth* in Maine, New Hampshire, Vermont, Connecticut, New York, Kentucky, Michigan, Indiana, Illinois, Missouri, and Iowa; *one and a half tenths* in Massachusetts and Ohio, and *one and a quarter tenths* in New Jersey. But with all this injury it is a greater crop than last year, which was so much injured by the rust in the western States. The crop of 1862 was 172,520,997 bushels, and of 1863, 174,858,167 bushels—an increase of 2,337,170 bushels.

Flaxseed.—According to the census of 1860, the whole number of bushels of flaxseed in the United States was but 611,780 bushels, of which 550,456 were raised in the loyal States. The increase of the last year was greatly over this amount, but we have no means of making a reliable estimate of it. Assuming that the increase of 1862 over 1859 was 50 per cent., the crop of last year would have been 825,684 bushels. The general average increase according to the tables of this month is *four-tenths*, or 40 per cent., which would make the crop of this year 1,155,958 bushels. The basis of the crop for the estimate of 1862 is too vague to render calculations for each State necessary, but the States growing flax most largely in 1859 show a heavy per cent. increase in 1863.

Hay.—It was supposed that the drought in the west and the rains in the east at the time of the hay harvest would materially and injuriously affect the crop of hay. But its quality in the west is represented as excellent, and the damage in the east is much less than anticipated. The crop of this year is about twenty millions of tons, and about one and a half million less than last year.

Corn.—The frosts of August and September have been very fatal to this national crop of our country. In the western States, where it is nearly all grown, the drought of spring was severe generally, and continued in many localities nearly to the first of August. The corn crop was consequently kept back, and the later planted was but recovering from this drought when the frosts of August 28, 29, and 30 destroyed it in low places where it was not protected by fogs, and all of it was arrested in ripening by the continued cold weather, until the more general and far more fatal frost of September 18 completely stopped all further growth.

The inquiries addressed to the correspondents of this department sought to reveal the extent of the damage, and the means adopted by the farmers to save the injured corn. The replies have been carefully examined, as well as an extensive correspondence accompanying the circulars. The newspaper accounts have not been overlooked, and all go to sustain the result exhibited in the table.

The corn crop of 1862 we estimate at.....	586, 704, 474 bushels
That of 1863 at.....	449, 163, 894 “
Decrease.....	<u>137, 540, 588 “</u>

The tables of these and other crops will be found on pages 14, 14, 16, and 17 of this report.

What is the value of the injured corn? is an inquiry that has been made in the October circular. But the general statements of our correspondents show

that whether cut up or left standing, the ear did not continue to fill but dried up. Fortunately the weather was generally favorable in its dryness, as will be seen from the tables showing the weeks of favorable, dry or very dry, wet or very wet weather. In localities where the weather was wet, the cut up corn moulded and the ear rotted.

The corn plant continues its flow of sap, undiminished, until about the first of October, when the grain is well filled with starch, and becomes glazed. If the ear is pulled, or the stalk broken off, whilst in the roast-ear state, it shrivels to such a degree as to be almost worthless. The further it is advanced when broken off the greater its value; but the common corn of the country demands that continued flow of the sap until the close of September. The effect of the frost was to stop that flow. The farmers commenced early to feed their frosted corn to hogs and cattle, but the general opinion is that it will avail but little for fattening purposes. Should this opinion be correct, the fattening must be done with the sounder corn. The high price for corn during the summer has, probably, lessened the amount of old corn on the farms.

Buckwheat.—In the winter months this crop is so generally consumed as a luxury and a necessity that its loss would be lamented everywhere. The accounts of the destructiveness of the frosts represented it as an almost entire failure, but our tables, which we regard as unerring in their general results, fortunately give abundant encouragement. The crop of 1862 was 18,722,995 bushels, that of 1863, 17,193,322, a decrease of 1,529,762 bushels. The tables show the reason of this small decrease in presence of so destructive frosts. The eastern States raise a greater proportional part of this crop. New York, New Jersey, and Pennsylvania alone produced 12,941,670 bushels this year. In these States the frosts were but little injurious, for they were, most emphatically, Mississippi valley frosts. Illinois alone lost 55,242,454 bushels of corn by them; but that State produces over 30 per cent. of the entire corn crop of the country, and as much as all the eastern and middle States together, with fifty millions of bushels of an overplus.

Potatoes.—New York and Pennsylvania are the chief potato producing States, and there is no material decrease in their potato crop for 1863. But in this, as in all other fall crops, the loss comes mostly on the western States. The potato crop of 1862 was 113,533,118 bushels, and of 1863, 97,870,035 bushels, a decrease of 15,663,083 bushels. The droughts of summer and the frosts of early autumn much injured this crop in the west. The recent correspondence of the department showed a disposition in the potatoes to rot in the eastern States, on account of wet weather, but no evidence appears of the disease becoming general.

Sorghum.—As this crop is mostly grown in the western States, the low figures of our table—6, 7, and 8, of these States—indicating a loss of 40, 30, and 20 per cent., show that this crop, too, has, in common with all other fall crops in that section, suffered very much. Immediately after the frosts, the cane was rapidly made into molasses, but the yield is spoken of as very small, and in localities it was regarded as unprofitable to make molasses from it. It is very certain that no sugar will be made from the sorghum the present year in the west.

Cotton.—Our tables exhibit few returns of this crop, showing that but few States attempt its cultivation. And in those that do the returns from the counties are, proportionally, as few, indicating that the general trial of last year revealed the fact that but few localities of the loyal States are at all suited to its cultivation. The western cotton has felt the full effect of the frosts of August and September; the reports from Illinois, where it is more largely raised than in any other State, show but *half* a crop.

Tobacco.—No crop felt so much the effects of these frosts as that of tobacco. It is a tender plant, and was greatly injured as far south as the correspondence of the department reaches—the middle portions of Kentucky. Still the yield

is greater than last year. The crop of 1863 is about 258,462,413 lbs., and of 1862, 208,807,078 lbs., an increase of 49,655,335 lbs. Yet the injury was great, being in the west about 25 per cent. The cause of the increase, under such an injury, will be found in the fact that 75 per cent. more of ground was cultivated, as is seen from the returns in the July report of this department. Our correspondents state, generally, that about one-half the crop was gathered before the frost in the western States.

Root crops.—The inquiries respecting these made to our correspondents embrace all usually cultivated roots, except potatoes. Their replies show that these exhibit a usual good crop, with the exception of two or three States. As most of them are grown in the eastern States, where rains have been favorable, the crop is a good one, and information, apart from the circulars, speak of an increased attention to these important products.

Hops.—The growing of hops has been gradually increasing in this country with the more extensive use of malt liquors, until it begins to take rank as one of the crops of the country. Hence the department has recognized it as such and placed it on the circular. The column of returns exhibits it as a good crop, but the different replies to the circulars show much diversity. Insects, in many localities, have injured the hops, and in some places the weather has been too wet. A considerable export of them is made, and the London papers give this general glance of the present European product.

“In Bavaria and Bohemia the crop is about half the large produce of 1862. An immense crop is grown this year in the district of Baden and the adjacent parts of Germany, whence are imported the inferior and weak hops, too often marked and sold as ‘first class Bavarians.’ In Alsace the crop is very large, but the quality, as usual, secondary. The Lorraine plantations are highly favored, both as to quality and abundance. In Belgium there is the largest and best crop known for years, and a marked improvement is observable in cultivation and curing. American reports are conflicting, but we are assured the produce is greatly in excess of the local requirements. In each of the above districts of production the great and steady increase of hop plantations is calculated to have a permanent influence on the trade.”

Honey.—Although the honey crop is more a luxury than a necessity, and receives but a limited attention, yet the recent improvement of the hive by Langstroth and others, has made bee culture a most interesting pursuit, and one that should receive much greater attention. With the knowledge of the merits of these improved hives, and the modes of handling bees, will arise a greater interest in bee culture, until, once more, honey will be an inseparable accompaniment of the buckwheat cake. The returns do not present much success in honey making, or in the increase of bees, for there is a general statement that bees did not swarm or increase this season, and that but little honey was made. The common assigned cause for this is the scarcity of flowers from drouth in the spring months.

Grapes.—But few of our fruits are so widely and rapidly spreading as the grape. It is not many years since a cultivated grape was scarcely to be found in the rural districts, and now all our correspondents make returns of it and speak of it as common in their counties. In Kentucky some of the reports are very favorable of its success, but in Ohio there has been considerable rot, as there has also been in Kentucky and elsewhere. The mildew has been prevalent in the eastern States, and in nearly all the States it has met with injury. It is as yet a too scattered crop to appear as a whole in figures, showing a regular annual production, but central points, such as Cincinnati, should endeavor to ascertain the grape and wine production of the country.

Stock hogs.—The inquiries relative to stock hogs in the September circulars are the first we have made of that great stock product, which, by its vastness, shows, not less than our cereal crops, the greatness of American agriculture.

The hogs are reported as a full average as to number and but a *half-tenth* or 5 per cent. below an average as to condition. Some correspondents state that the hogs were put early on the frosted corn, and that many will be sent eastward as soon as possible. In the west the chief part of the hogs are turned on the cornfields to "*hog down*," as it is there called, and the quality of the corn is determined by the rapidity of fattening, for but little of it is gathered in the hog districts. It is this mode of fattening which keeps fertile the corn grounds of the west, as nothing is taken off the ground but the additional fat accumulated by the hogs. Having once been turned on, they will be fattened so that the usual number of fattened hogs may be looked for. How they will compare in weight with former years will depend on the price and the quality of the corn. Inquiries relative to fattening hogs and cattle will be made in the monthly circulars until after the slaughtering season.

The character of the tables.—The great utility of the manner in which the returns are made of the amount and condition of the crops to this department will be more clearly seen from this monthly report. Having a basis in the amount of the last year's crops, the tables can be changed to actual amounts, and the present crops be shown in bushels and pounds. Compare the clear views presented by our tables so made with the vague impression left on the mind by reading the usual newspaper accounts, and its superiority is at once seen. The greater number of these accounts, the more indefinite is the impression left on the mind. But the tables of this department reduce all injuries to definite amounts.

A friend sends us some estimates made by him of the injuries to the crops, based on our August returns. In examining them we see he has mistaken the nature of the tables; and, therefore, it is now noticed that others may not fall into a like error. In returning the *amount* of a crop as compared with 1862, or its "*appearance*," in one column, and the injuries it has sustained in another, our correspondents state it in this way. Supposing the crop is an average one, represented by 10, and injured two-tenths, then the amount or appearance is put down 8 and the injury 2. Or if the crop is two-tenths above an average, and injured three-tenths, the amount or appearance would be 9 and the injury 3; nine and three being twelve, or two-tenths above the average. So that in estimating the amount of the crop from such returns, it is to be made by the first column of figures—the 8 and 9. But our friend, after having done this, deducts also the amount of the figures in the second column—the 2 and 3—as above. It will be seen that our correspondents make this deduction in their returns; to make it again is twice estimating the injury. Such calculation would make the wheat crop of 1863 14,236,993 bushels less than that of 1862, whereas it is 1,074,739 bushels greater.

The manner in which the monthly report is received.—In seeking to make this department efficient in the accomplishment of the objects for which it was created, the Commissioner of Agriculture soon perceived the necessity of making regular monthly publications, that he might have some mode of communication with the agriculturists of the country. Congress has required the collection of agricultural statistics as an imperative duty of the department; but to collect them requires the aid of enterprising farmers, who must see that their efforts are effecting a practical good as a condition of continuing their correspondence. They see clearly what is accomplishing when their returns to the circulars are immediately placed before the country; and what practical good can statistics accomplish if not applied to a practical purpose? To keep them in the department, unknown and unused, is of no avail.

The estimation placed on these reports by farmers and those dealing in agricultural products is very gratifying to the Commissioner; and the practical objects of the present report cannot fail to increase this estimation.

The annual agricultural report of this department is now being bound, and in two weeks will be distributed to our correspondents.

STATES NOT REGULARLY REPORTED.

California.—The distance of the Pacific States and Territories make it impossible to send the monthly circulars and receive answers to them in time to have them reported with the Atlantic and Mississippi Valley States. But the returns may be made in time to have reports of them for September made in November, and thus in all other months. Hence we desire to have the name of one reliable correspondent for each county in all these States and Territories sent to this department as soon as possible, that full reports may be received here of the interesting agriculture of climates and productions differing from the Mississippi and Atlantic States. We respectfully ask the attention of members of Congress and delegates to this request.

The commercial operations of San Francisco show an active export to England, Australia, China, and other Pacific ports, of the agricultural productions of California, and show a heavy surplus of flour, wheat, barley, rye, oats, and potatoes. Of animal products, wool, hides, and tallow are prominent.

In the county of Angeles, one of the most southern and driest, our returns exhibit much injury to the wheat, barley, and hay crops, reducing them *one-half*, on account of drought. The weather returns say "It never rains here from April to November, and this year we had none after January." But still corn and tobacco crops were *fifty* per cent. above an average in appearance; these, we suppose, are irrigated. The wool crop exceeds a million and a third pounds, selling at 16½ cents per pound. Fruits, too, were excellent, this county being one of the best in grape cultivation. The grape crop was unaffected with any disease; strawberries and raspberries were selling at 25 cents per pound; apples were excellent in appearance; but peaches were not over a half a crop on account of late frosts.

What is here said of fruits applies to San José county, except that the prices of strawberries ranged from 10 to 25 cents per pound, and raspberries from 10 to 20 cents. Apples were fine and abundant; but there was some injury by *mildew*, the cause of which was attributed to cold nights and warm days. These returns were dated in the fore part of September.

Utah.—From *Utah county* we have returns dated the middle of September, which show the corn crop a general average in appearance. Tobacco, sorghum, and flax are from 30 to 50 per cent. above this average. Hay is good, and fruits are excellent. The potato was an average crop in appearance, but injured in some places slightly. Gardens were good; pastures 20 per cent. below an average from drought; and butter and cheese productions, in consequence, lessened to the same extent, whilst the demand for them was 50 per cent. greater than in 1862. Flaxseed yield was from 12 to 15 bushels to the acre.

In *San Pete county* the appearance of most of the crops were not so favorable, corn and hay being 40 per cent. below a general average in appearance, but potatoes, gardens, and pastures were an average. Flax yielded 20 bushels to the acre. The weather was dry, and all crops were raised by irrigation; but the water in the streams was scarce.

In *Washington county*, corn, tobacco, grapes, peaches, potatoes, gardens, and cheese were a general average. Sorghum and cotton and butter, 20 per cent. above it, and hay and apples 20 per cent. below it. The weather was very dry in the first week of August, and very wet during the remainder of the month.

Western Virginia and Tennessee.—We receive a too limited number of returns from these States to have them represented properly in the tables, although the first of these we had placed in them. We desire the name of a person that would make a reliable correspondent from each county of these States, that we may have full reports from them. Will congressmen send to this department such a name from each county in their respective districts?

Table of the amount, condition, and injuries to the crops, as compiled from the returns of the correspondents of the Agricultural Department, for the month of September, 1863.

STATES.	CORN.		TOBACCO.		SORGHUM.		BUCK-WHEAT.		COTTON.		POTATOES.		WHEAT.	
	Appearance of crop in September.	Injury from frost or other cause.	Appearance of crop in September.	Injury from frost or other cause.	Appearance of crop in September.	Injury from frost or other cause.	Average amount sown compared with 1862.	Injury from frost or other cause.	Appearance of crop in September.	Injury from frost or other cause.	Appearance of crop in September.	Injury from frost or other cause.	Average amount of crop compared with 1862.	Injury to grain from any cause.
Maine.....	10	$\frac{1}{2}$	11	----	----	----	10	$\frac{1}{2}$	----	----	8	2	9	2
New Hampshire.....	10	----	8	2	----	----	10	----	----	----	8	2	8	2
Vermont.....	11	$\frac{1}{2}$	10	----	----	----	10	$\frac{3}{4}$	----	----	8	$1\frac{1}{2}$	9	2
Massachusetts.....	10	$\frac{1}{2}$	10	$\frac{1}{2}$	$10\frac{1}{2}$	----	$9\frac{1}{2}$	$\frac{3}{4}$	----	----	9	1	10	1
Rhode Island.....	10	----	10	----	----	----	----	----	----	----	8	2	10	----
Connecticut.....	11	$\frac{1}{2}$	11	----	10	----	10	----	----	----	9	$\frac{3}{4}$	10	----
New York.....	11	$\frac{1}{2}$	10	$\frac{1}{2}$	9	----	10	2	----	----	9	2	10	1
New Jersey.....	10	$\frac{3}{4}$	10	----	12	----	9	1	7	$2\frac{1}{2}$	9	1	10	$\frac{1}{2}$
Pennsylvania.....	10	1	10	1	10	1	9	3	----	----	10	1	10	$\frac{1}{2}$
Maryland.....	8	$1\frac{1}{2}$	9	$\frac{1}{2}$	10	----	9	1	10	----	8	2	11	1
Delaware.....	9	1	10	----	9	1	9	2	----	----	7	3	10	$\frac{1}{2}$
Kentucky.....	10	2	8	3	9	2	9	----	8	1	11	----	10	1
Ohio.....	8	$2\frac{1}{3}$	$8\frac{1}{2}$	$2\frac{1}{3}$	8	2	$8\frac{1}{2}$	3	----	----	$7\frac{1}{3}$	$2\frac{1}{2}$	$9\frac{1}{3}$	$1\frac{1}{3}$
Michigan.....	$7\frac{1}{2}$	3	6	$3\frac{1}{2}$	7	4	9	6	----	----	$8\frac{3}{8}$	2	$9\frac{1}{3}$	3
Indiana.....	6	4	7	4	$6\frac{2}{3}$	$3\frac{2}{3}$	9	$5\frac{1}{3}$	$6\frac{1}{3}$	7	$7\frac{1}{3}$	$3\frac{1}{2}$	10	$\frac{3}{4}$
Illinois.....	6	4	7	4	6	$4\frac{1}{2}$	$7\frac{1}{2}$	$4\frac{1}{3}$	5	6	7	$3\frac{1}{3}$	$10\frac{1}{2}$	$1\frac{1}{3}$
Missouri.....	8	$2\frac{1}{2}$	9	1	9	1	8	2	8	$1\frac{2}{3}$	$8\frac{3}{4}$	2	9	$\frac{2}{3}$
Wisconsin.....	$8\frac{1}{3}$	3	9	3	8	3	$9\frac{1}{2}$	$3\frac{1}{2}$	----	----	$9\frac{1}{2}$	$1\frac{1}{2}$	11	1
Iowa.....	7	4	6	5	7	4	8	5	4	5	8	3	12	1
Minnesota.....	6	$3\frac{2}{3}$	7	4	6	$4\frac{1}{2}$	8	4	----	----	7	2	9	2
Kansas.....	11	1	10	1	11	----	9	1	9	2	11	1	13	$\frac{3}{4}$
Nebraska Territory....	7	4	7	7	6	5	4	6	----	----	8	2	12	$\frac{3}{4}$
West Virginia.....	9	----	9	----	10	----	9	$\frac{1}{2}$	----	----	9	----	11	----

Table of the amount, condition, and injuries to the crops, &c.—Continued.

STATES.	RYE.		BARLEY.		OATS.		FLAXSEED.		HAY.		ROOT CROPS.		HOPS.	
	Average amount of crop compared with 1862.	Injury to grain from any cause.	Average amount of crop compared with 1862.	Injury to grain from any cause.	Average amount of crop compared with 1862.	Injury to grain from any cause.	Average amount of flaxseed compared with 1862.	Injury to seed from any cause.	Average amount of crop compared with 1862.	Injury to hay from any cause.	Average amount planted compared with 1862.	Injury from any cause.	Average amount of crop compared with 1862.	Injury from any cause.
Maine.....	9	.....	10	1	9	1	14	.....	10	2	10	.....	10	.....
New Hampshire.....	9	$\frac{1}{2}$	9	2	9	1	.....	.....	10	1	9	.....	11	.....
Vermont.....	10	$\frac{1}{2}$	10	.....	9	1	15	.....	10	1	10	.....	10	.....
Massachusetts.....	10	$\frac{1}{8}$	9	1	9	$11\frac{1}{2}$	20	$\frac{1}{2}$	10	$11\frac{1}{2}$	9	1	10	$\frac{1}{2}$
Rhode Island.....	10	.....	9	1	7	.....	.....	.....	10	2	10	2	.....	.....
Connecticut.....	10	1	10	.....	11	1	13	1	10	2	10	.....	10	2
New York.....	10	.....	10	$\frac{1}{2}$	10	1	23	.....	11	1	10	1	10	1
New Jersey.....	10	$\frac{1}{2}$	9	.....	9	$11\frac{1}{2}$	17	$\frac{1}{2}$	7	$11\frac{1}{2}$	10	$\frac{1}{2}$	9	1
Pennsylvania.....	10	$\frac{1}{2}$	9	1	10	2	16	1	7	2	10	$11\frac{1}{2}$	10	1
Maryland.....	9	1	9	$\frac{1}{2}$	9	2	16	$\frac{1}{2}$	7	$21\frac{1}{2}$	7	2	9	$22\frac{1}{2}$
Delaware.....	11	.....	12	.....	12	.....	11	.....	7	2	7	3	9	.....
Kentucky.....	10	.....	10	.....	10	1	11	.....	9	1	10	.....	10	.....
Ohio.....	7	1	$9\frac{1}{2}$	1	11	$11\frac{1}{2}$	14	$\frac{1}{2}$	$6\frac{1}{2}$	3	9	2	9	1
Michigan.....	10	.....	10	1	10	1	14	.....	$9\frac{1}{2}$	1	10	1	11	1
Indiana.....	$9\frac{1}{2}$	$\frac{1}{2}$	9	.....	11	1	13	$22\frac{1}{2}$	11	2	$9\frac{1}{2}$	3	10	$32\frac{1}{2}$
Illinois.....	9	.....	$10\frac{1}{2}$	$27\frac{1}{2}$	11	1	13	$27\frac{1}{2}$	9	2	12	3	9	2
Missouri.....	10	.....	10	$\frac{1}{2}$	7	1	12	.....	7	3	9	1	7	2
Wisconsin.....	$10\frac{1}{2}$	$\frac{1}{2}$	$10\frac{1}{2}$	$\frac{1}{2}$	11	$\frac{1}{2}$	12	.....	10	$11\frac{1}{2}$	10	1	11	1
Iowa.....	11	1	11	$42\frac{1}{2}$	11	1	13	1	7	$21\frac{1}{2}$	10	2	11	1
Minnesota.....	9	1	10	1	7	2	13	1	7	2	7	3	11	1
Kansas.....	11	.....	11	.....	12	.....	12	.....	13	.....	11	$\frac{1}{2}$	10	.....
Nebraska Territory.....	10	.....	23	.....	13	.....	12	.....	7	2	.....	.....	.....	.....
West Virginia.....	10	.....	13	.....	11	.....	10	.....	7	.....	10	.....	5	.....

Table of the amount, condition, and injuries to the crops, &c.—Continued.

STATES.	HONEY.		GRAPES.		STOCK HOGS.		WEATHER.				
	Average amount of honey compared with 1862.	Injury to bees from moths or other cause.	Appearance of crop in September.	Injury from frost or other cause.	Average number compared with 1862.	Average condition of same as to weight and size.	Favorable.	Dry.	Very dry.	Wet.	Very wet.
Maine.....	7	1	7	2	10	10	25	9	2	8	4
New Hampshire.....	7	1	12	1	10	10	13	13	0	10	1
Vermont.....	7	---	9	1	10	10	24	5	0	9	6
Massachusetts.....	10	1	10	---	9	10	30	9	0	9	---
Rhode Island.....	7	3	10	---	10	10	6	2	---	---	---
Connecticut.....	10	1	10	1	12	11	7	8	0	4	1
New York.....	9	1	10	1	10	10	70	53	11	28	2
New Jersey.....	9	1	8	2	10	10	17	16	13	5	1
Pennsylvania.....	9	1	10	1	10	10	42	75	35	25	---
Maryland.....	9	2	9	1	9	9	19	15	7	3	---
Delaware.....	8	2	9	1	10	10	---	4	2	2	---
Kentucky.....	7	2	7	3	10	10	10	12	1	5	0
Ohio.....	7 $\frac{1}{2}$	2	9	1 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	83	90	10	18	3
Michigan.....	10	1	9 $\frac{3}{8}$	2	10 $\frac{1}{2}$	9 $\frac{3}{8}$	37	44	2	12	3
Indiana.....	8 $\frac{2}{3}$	2	8	2	9 $\frac{3}{8}$	8 $\frac{1}{8}$	61	55	11	23	3
Illinois.....	8	2	9	1 $\frac{1}{2}$	10	9	56	113	45	19	---
Missouri.....	9	1	8	1 $\frac{3}{8}$	8	9	9	27	6	3	---
Wisconsin.....	11	1	9	2	10	9	31	46	18	8	2
Iowa.....	11	1	10	1	11	10	40	117	23	18	1
Minnesota.....	12	1	10	1 $\frac{3}{8}$	9	10	11	27	11	6	1
Kansas.....	12	1	10	1	10	10	3	39	33	1	---
Nebraska Territory.....	14	---	15	---	9	9	1	4	3	3	---
West Virginia.....	5	---	15	---	12	0	---	4	---	---	---

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of September, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this September compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for September, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND RAIN OF SEPTEMBER, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornishville	York	G. W. Guptill	16	84	23	40	58.1	2.43
Foxcroft	Piscataquis	Mark Pitman	15	74	22	41	51.9	4.52
Steuben	Washington	J. D. Parker	16	82	24	34	54.1	4.91
West Waterville	Kennebec	B. F. Wilbur						2.85
Williamsburg	Piscataquis	Edwin Pitman	16	87	23	31	53.6	.....
NEW HAMPSHIRE.								
Littleton	Grafton	Robert C. Whiting..	16	88	23	31	56.4	1.80
Stratford	Coos	Branch Brown	16	82	28	29	53.3	2.88
VERMONT.								
Burlington	Chittenden	McK. Petty	16	78	23	35	54.8	5.30
Craftsbury	Orleans	James A. Paddock..	16	83	23	31	52.9	2.96
Springfield	Windsor	Rev. J. W. Chickering	18	88	23	32	59.0	2.06
Brandon	Rutland	David Buckland	16	84	23	34	58.4	3.34
Rutland	do.	Stephen O. Mead	16	86	23	32	56.2	.....
MASSACHUSETTS.								
New Bedford	Bristol	Samuel Rodman	16	79	23	42	60.2	2.56
Amherst	Hampshire	E. S. Snell	16	80	23	32	57.4	2.16
Mendon	Worcester	Jno. George Metcalf.	16	82	23, 24	38	59.0	.....
Topshfield	Essex	John H. Caldwell	16	86	23	37	58.8	1.98
Westfield	Hampden	Rev. Emerson Davis	16	83	23	36	57.0	2.82
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell	16	82	23	37	57.8	1.74
CONNECTICUT.								
Pomfret	Windham	Rev. Daniel Hunt	15, 16	77	23	37	56.7	2.90
Middletown	Middlesex	Prof. John Johnston	16	84.5	23	34	59.6	1.73

Temperature and rain of September, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Rochester	Monroe	Dr. M. M. Mathews.	16, 17	85	27	34	57.7	1.51
Theresa	Jefferson	S. O. Gregory	16	84	27	30	53.2	2.62
Wilson	Niagara	E. S. Holmes, M. D.	17	85	23	31	59.7	2.80
Skaneateles	Onondaga	W. M. Beauchamp..	15, 16	82	27	37	57.0	-----
NEW JERSEY.								
Newark	Essex	W. A. Whitehead...	17	78	23	39	60.0	1.30
PENNSYLVANIA.								
Fleming	Center	Samuel Brugger...	16	86	28	34	61.1	1.16
Harrisburg	Dauphin	John Heiseley, M.D.	8, 17	82	23	44	65.8	4.55
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick.	7	81.5	27	44.5	65.6	0.98
Canonsburg	Washington	Rev. W. Smith, D.D.	17	85	27	30	59.4	3.37
Nazareth	Northampton	L. E. Ricksecker	3, 4, 6	82	23	41	63.4	-----
Oil City	Venango	James A. Weeks...	17	86	27	30	59.3	-----
MARYLAND.								
Sykesville	Carroll	Miss Harriott M. Baer.	8, 12	79	23, 26	43	61.1	-----
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Inst'n..	6, 9	80	28	43	63.3	3.09
OHIO.								
Welshfield	Geauga	B. F. Abell, A.M. ...	16	85	27	37	59.9	1.63
Austintburg	Ashtabula	J. G. Dole and C. L.						
		L. Griffing	16	86.5	27	32	58.1	3.45
Urbana	Champaign	Prof. M. G. Williams.	11	88	26	34	62.6	3.13
Portsmouth	Sciota	L. Engelbrecht	17	84	27	39	65.2	1.20
New Lisbon	Columbiana	J. F. Benner	17	88	20	30	60.7	2.44
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	16	86	27	41	62.5	2.63
Bowling Green	Wood	W. R. Peek, M.D. ...	16	85	22	37	61.0	0.97
Westerville	Franklin	Prof. John Haywood.	11	85	19, 25	37	61.0	0.93
Hillsborough	Highland	J. McD. Mathews. ...	8	82	26	36	63.8	2.72
Toledo	Lucas	J. B. Trembly, M.D.	16	88	26	32	61.6	1.62
Kelley's Island	Erie	Geo. Huntington	11, 16	85	26	42	62.4	1.29
Steuenville	Jefferson	Roswell Marsh		84		37	63.0	3.22
Cincinnati	Hamilton	G. W. Harper	8	92	20	38	65.0	3.10
MICHIGAN.								
Monroe	Monroe	Florence E. Whelpley	16, 29	89	22, 26	36	59.9	1.51
Ypsilanti	Washtenaw	C. S. Woodard	28	84	26	32	58.4	1.71
Lansing	Ingham	Prof. R. C. Kedzie..	16, 28	83	26	27	58.6	0.89
Clifton	Kewenaw	Wm. Van Orden, jr.	16	88	18	20	49.1	3.81
INDIANA.								
New Castle	Henry	T. B. Redding	8	90	20	33	64.0	-----
South Bend	St. Joseph	Reuben Burroughs..	16	88	26	35	61.6	1.45
New Albany	Floyd	Dr. E. S. Crozier	8	91	20	38	65.4	2.56
New Harmony	Posey	Jno. Chappellsmith ..	8	89	19, 20	45	66.4	2.15
Rockville	Park	Miss M. A. Anderson.	8	90	19	38	64.8	-----
ILLINOIS.								
Peoria	Peoria	Frederick Brendel ..	16	88	19	38	65.2	2.51
Galesburg	Knox	Prof. W. Livingston.	27	86	19	38	61.3	3.70
Winnebago	Winnebago	J. W. Tolman	15	89	19	32	60.8	3.26
Ottawa	La Salle	Emily H. Merwin	16	89	18, 19	40	62.1	2.74
Upper Alton	Madison	Mrs. A. C. Tribble	7, 8	84	20	49	64.5	-----
Augusta	Hancock	S. B. Mead	7	88	18	38	63.2	3.43

Temperature and rain of September, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
ILLINOIS—(Cont'd.)								
Manchester	Scott	Dr. John Grant and Ellen Grant		o		o	o	In.
Waverley	Morgan	Timothy Dudley	8	90	18, 19	40	64.2	2.79
Du Quoin	Perry	Chas. Ziegler	8	92	20	30	64.7	3.00
MISSOURI.								
Harrisonville	Cass	John Christian	7, 14	98	20	46	71.1	.....
Canton	Lewis	George P. Ray	7	97	19	38	66.9	2.86
WISCONSIN.								
Beloit	Rock	Henry D. Porter	15	87	25	35	60.6	1.27
Madison	Dane	Prof. J. W. Sterling	15, 16	84	19	34	59.3	.....
Manitowoc	Manitowoc	Jacob Lüps	23	78	19	32	55.2	.....
IOWA.								
Iowa City	Johnson	Prof. T. S. Parvin	15	90	25	36	61.2	4.44
Lyons	Clinton	Dr. J. P. Farnsworth	27, 28	88	19	34	62.3	2.35
Dubuque	Dubuque	Asa Horr, M.D.	16	89	19	39	63.3	2.16
Independence	Buchanan	A. C. Wheaton	15	90	19	28	61.7	5.20
Pleasant Plain	Jefferson	T. McConnel	7, 8	98	25	30	63.2	7.10
Algona	Kossuth	Dr. F. and Miss McCoy	14	95	19	34	60.4	1.19
Muscatine	Muscatine	Suel Foster	1	84	25	36	.....	3.10
Fort Madison	Lee	Daniel McCready	15	89	19	35	63.3	.....
MINNESOTA.								
Forest City	Meeker	Henry L. Smith	28	94	18	38	59.1	1.87
NEBRASKA.								
Bellevue	Sarpy	Wm. Hamilton	14	93	18	37	65.6	1.75
KANSAS.								
Manhattan	Riley	H. L. Dennison	7	95	18	39	73.2	0.73
Lawrence	Douglas	Arthur N. Fuller	7	98	18	39	72.0	0.37

Table showing the average temperature and fall of rain (in inches and tenths) for the month of September, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1863.	
		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	6	56.4	1.8	58.8	3.5	57.8	1.6	58.8	3.5	55.9	4.0	57.6	2.9	55.9	3.68
New Hampshire.....	4	59.2	0.3	60.1	4.9	58.7	1.3	58.1	5.0	48.2	4.2	56.9	3.1	54.9	2.34
Vermont.....	4	58.1	4.5	58.3	4.0	57.8	1.8	59.0	3.8	56.0	4.2	57.8	3.7	56.3	3.42
Massachusetts.....	12	61.1	1.0	61.4	4.8	60.8	2.9	61.1	3.8	58.4	4.0	62.6	3.3	58.5	2.38
Rhode Island.....	1	61.9	0.3	62.2	5.1	60.3	2.3	62.2	3.1	59.6	3.7	61.5	2.9	57.8	1.74
Connecticut.....	4	62.4	0.5	63.4	4.1	61.5	3.0	61.4	4.9	59.1	4.0	61.6	3.3	58.1	2.31
New York.....	18	62.2	1.9	61.9	3.7	61.2	2.8	54.2	3.7	59.3	4.2	59.8	3.3	56.9	2.31
New Jersey.....	4	65.4	2.9	65.1	2.8	65.3	2.7	63.6	1.5	62.1	7.3	64.3	3.5	60.0	1.30
Pennsylvania.....	20	66.7	4.5	64.1	2.4	64.4	1.7	64.1	1.7	62.7	7.0	64.4	3.5	62.4	2.52
Maryland.....	5	67.8	8.0	66.7	2.2	66.3	1.4	65.1	3.6	66.3	8.4	66.5	4.7	61.1	.....
District of Columbia.....	1	70.1	2.9	67.4	1.9	.....	1.6	66.5	3.9	67.2	5.8	67.8	3.0	63.3	3.09
Kentucky.....	3	74.5	4.7	64.8	1.4	69.1	2.3	67.3	2.8	67.4	3.2	68.6	2.9	.....	.....
Ohio.....	19	69.7	5.4	63.3	2.4	65.4	1.4	65.0	1.6	62.9	3.4	65.3	2.9	62.1	2.18
Michigan.....	8	65.0	6.0	57.8	3.1	61.6	2.6	60.3	3.1	63.5	3.3	61.6	3.6	56.5	1.98
Indiana.....	5	71.5	5.7	63.1	0.7	67.7	1.6	66.2	2.9	65.2	5.4	66.7	3.3	64.5	2.05
Illinois.....	13	69.9	2.6	63.3	3.0	66.4	2.2	65.1	3.7	62.3	3.0	65.4	2.9	63.2	3.07
Missouri.....	2	73.1	3.9	65.6	2.9	70.0	2.1	71.3	3.9	66.4	4.4	69.3	3.4	60.0	2.86
Wisconsin.....	9	63.0	4.5	58.4	3.5	61.8	3.8	60.6	4.1	58.0	3.0	60.4	3.8	58.3	1.27
Iowa.....	8	67.1	4.7	61.5	2.9	65.2	2.4	63.7	3.7	61.6	2.9	63.8	3.3	62.2	3.65
Minnesota.....	3	60.4	.....	49.9	.....	60.0	3.0	57.8	3.6	55.4	3.6	56.7	3.4	59.1	1.87
Nebraska Territory.....	2	.....	.....	.....	.....	75.3	2.5	64.9	2.6	63.0	2.1	67.7	2.4	65.6	1.75
Kansas.....	4	.....	.....	.....	.....	70.6	.....	69.8	2.5	68.3	1.9	69.5	2.2	72.6	0.55
California.....	2	.....	.....	71.1	0.0	65.1	0.0	68.7	0.0	68.8	0.0	68.2	0.0	.....	.....

THE FROSTS OF AUGUST 1863.

The most prominent feature in the meteorology of August was one of those marked depressions of temperature which occur at all seasons and in every year, and which sometimes prevail over the whole of the United States, east of the Rocky mountains, and even beyond, both north and south. These changes are interesting alike to the agriculturist and to the meteorologist, sometimes awakening the anxiety of the former for the safety of his crops, and always furnishing to the latter fresh materials for the study of those general laws which control the movements and changes of the atmosphere. The depression during the latter part of August, from its visible effect in the form of frost, has attracted much public notice; but changes similar in kind, though often less distinctly marked, so far from being unusual, are exhibited in the meteorological records of every season. It may be interesting to the observers to see grouped together a few of the principal facts exhibiting the beginning and progress of this depression of temperature. To investigate it fully, in connexion with the winds, moisture, and barometric changes, would occupy more space and time than these monthly publications allow, and would require registers from further west and north than have been received, and also the observations for the early part of September.

Minnesota.—The first appearance of this cold, which the registers thus far received exhibit, was on the morning of the 22d. At St. Paul, in Minnesota, it began on this day, and the fall was sudden. At 7 a. m. the thermometer stood at 51 degrees, which was lower than it had been at that hour on any previous day of the month, and 23 degrees lower than at 9 p. m. of the preceding day. The temperature, not steadily descending, but fluctuating somewhat, reached the lowest point on the morning of the 29th, when ice was formed an eighth of an inch thick, and corn was killed by a very heavy white frost.

Nebraska.—At Fontenelle, Washington county, in latitude $41^{\circ} 31'$, and not far west of the Missouri river, the cold was first noticed also on the morning of the 22d, the temperature at 7 a. m. being 62 degrees, which was lower than the morning temperature of any previous day, and 13 degrees below that of the preceding morning. The coldest day of the month was the 24th, the mean temperature of which was 50 degrees, and the lowest temperature was at 5 a. m. on the 29th, when the thermometer was at 30 degrees, and there was a heavy frost, killing corn, sorghum, &c., in low situations.

Iowa.—In Kossuth, Dubuque, and Muscatine counties the cold began on the morning of the 22d. At Muscatine city the greatest change was on the 24th. There was frost in the morning, and at 9 p. m. the temperature was 26 degrees lower than at the same hour on the preceding night, and at Dubuque it was 25 degrees lower. In Clinton, Buchanan, and Johnson counties the depression was also manifested on the 22d, but later in the day; and at Fort Madison, Lee county, in the southeast corner of the State, in the night of the 22d, or morning of the 23d. At Iowa city the temperature was 23 degrees lower at 2 p. m. on the 24th than at the same hour on the 23d; and at Algona, Kossuth county, it was 20 degrees colder at 9 p. m. on the 22d than at the same hour on the 21st. There was frost to injure vines on the 25th, and on the 29th the frost was general and severe throughout the State, and at Lyons, Clinton county, ice was formed in low places. On the 30th the frost was lighter.

Wisconsin.—At Beloit, in the same latitude with Dubuque, Iowa, the cold also appeared on the 22d, but a little later in the day; the temperature at 7 a. m. being about the average for that hour, and at 2 p. m. lower than at 7 a. m. At 9 p. m. on the 23d the temperature was 19 degrees lower than on the preceding night, and 27 degrees higher than on the following night. The frost was heavy on the last three days of the month.

Kansas.—The three stations from which registers have been received are all in the eastern part of the State, and the cold began in the evening of the 23d. At all three of the stations the maximum temperature of the month was on this day, while at 9 p. m. it was lower than at that hour on any previous day. At Fort Riley on the 23d the thermometer fell 31 degrees from 2 p. m. to 9 p. m., at Manhattan 24 degrees, and at Lawrence 33 degrees. The temperature at Fort Riley and Manhattan at 2 p. m. on the 24th was 32 degrees lower, and at Lawrence 35 degrees lower, than at the same hour on the 23d. The observer at Fort Riley reports a light frost on the 25th and 29th, and at Manhattan a frost on the 30th sufficient to kill vines.

Missouri.—Only two registers have been received—one from Harrisonville, in Cass county, on the western border of the State, and the other from Wyaconda Prairie, Lewis county, near the northeast corner. The fall began late in the night of the 23d, or early in the morning of the 24th, the temperature at both stations being higher at 9 p. m. of the 23d, and lower at 7 a. m. of the 24th, than at those hours on any previous day of the month. At Harrisonville the temperature at 9 p. m. was 34 degrees lower, and at Wyaconda Prairie 36 degrees lower than on the 23d. At Harrisonville there was a light frost on the 24th, 25th, and 29th, and at Wyaconda Prairie on the 25th a frost killing corn, sorghum, vines, &c., on low grounds, and injuring them very much on the

uplands. There was also frost here on the 28th and 30th, and the observer says a frost in August was never before known in that part of the country.

Illinois.—The registers are from nine stations, each in a different county, and extending from the northern border of the State to the latitude of the mouth of the Missouri river. On the morning of the 23d the temperature at nearly all the stations was low, but it increased during the day, and at 9 p. m. at all the stations, with only two exceptions, (and these barely so,) the temperature was higher than at the same hour on any day of the month. On the 24th the cold, which continued to the end of the month, set in. At 7 a. m. it was from 7 to 21 degrees lower than on the 23d, at 2 p. m. 16 to 34 degrees lower, and at 9 p. m. 26 to 32 degrees. In Hancock and Knox counties a light frost was recorded on the 25th. On the 29th frost was noticed at a number of places, but on the 30th it was more general and severe throughout the State. At Galesburg, Knox county, water froze.

Indiana.—The registers are from five counties, situated at both extremities, and in the interior of the State. The depression seems to have begun on the 24th, after the 7 a. m. observation. It was warmer at all the five stations at that hour on the 24th than on the 23d, but during the forenoon the temperature fell; the 2 p. m. observation at Rockville, Park county, being 17 degrees lower than at 7 a. m.; at South Bend, St. Joseph's county, and at New Harmony, Posey county, 10 degrees lower; and at the other two stations only 1 and 4 degrees higher. At all the stations it was much colder in the afternoon and night of the 24th than on the 23d—at 2 p. m. from 10 to 29 degrees lower, and at 9 p. m. from 14 to 30 degrees lower. A light frost is recorded in St. Joseph's county on the 26th, and in Park county on the 26th and 27th. The frost was general on the 30th and 31st. At New Albany one could readily write in the frost on boards and fences; and at New Castle ice was formed an eighth of an inch thick in shallow water.

Michigan.—Two registers have been received—one from Ypsilanti, and one from Monroe, both in the southeast corner of the State. At Ypsilanti no observation is recorded at 9 p. m. on the 23d, but at 7 a. m. and 2 p. m. of that day the temperature was lower than at those hours on any previous day of the month. It rose again during the night or next morning, and on the 24th at 7 a. m. it was 76, being 20 degrees higher than at that hour on the preceding day, and higher than on any day of the month at 7 a. m., except the 1st, 2d, and 18th, on each of which days it was 78. During the forenoon of the 24th the temperature fell rapidly, and at 2 p. m. it was 8 degrees, and at 9 p. m. 22 degrees lower than at 7 in the morning. At Monroe the cold also began early on the 23d, and the mean temperature of the day was lower than on any previous day of the month, except the 17th, but the morning observation of the 24th does not exhibit the same comparative elevation of temperature as at Ypsilanti. The cold continued through the remainder of the month, and produced a killing frost on the 29th and 30th.

Ohio.—The registers are from twelve counties, and represent nearly all parts of the State, from Lake Erie to the Ohio river. Without presenting the details of all these, it may be stated generally that the temperature was high on the morning of the 24th, and the depression which marked the end of the month began at some stations in the forenoon, at some in the night of that day, and at a few not until the morning of the 25th. The only frosts reported before the 30th were at Newark, on the 26th, and at Urbana, on the 27th; of the latter the observer remarks that it did not injure his most tender exotics. On the 30th and 31st frosts prevailed throughout the State, at some places damaging corn, at others injuring only tender vines. The observer at Newark states that there were six frosts in June, two in July, and three in August.

Pennsylvania.—Only three registers have been received from this State—one from Canonsburg, near the southwest corner, one from Fleming, in the centre,

and one from Harrisburg, in the southeast part, and in the same latitude with Canonsburg. The cold first appears on the 25th, at Canonsburg and Fleming early in the morning, and at Harrisburg in the forenoon. At the two former stations the mean temperature of the day was lower than on any previous day of the month, and also at Harrisburg, except the 18th, which was two-thirds of a degree lower. At Canonsburg and Harrisburg the thermometer was lower at 2 p. m. on the 25th than at 7 a. m., and at Fleming it was only two degrees higher. At all three of the stations the 24th was among the warmest days of the month. A light frost is reported at Canonsburg in low situations on the 26th, 27th, and 30th, and at Fleming on the 27th and 30th.

Maryland.—At Sykesville, (the only place reported from,) the 24th was among the warmest days of the month, and about 20 miles northwest of Baltimore, the beginning of the cold was manifested late on the 25th. No frost is mentioned on the register. The lowest temperature recorded was 51, at 7 a. m. on the 27th, and the day of lowest mean temperature was the 31st.

New Jersey.—Two registers have been received from this State—one from Newark, on which only the daily maximum and minimum observations are recorded; the other from Progress, on the Delaware river, some miles above Philadelphia. The cold began in the evening of the 25th. With a very few exceptions the morning of that day was the warmest of the month, and the morning of the 26th colder than any day preceding it. Neither of the observers record any frost.

New York.—The registers are from nine counties, lying on the western, northern, and eastern boundaries, and in the central part of the State. There are none from the southern tier of counties bordering on Pennsylvania. In the western, central, and northern counties the cold was indicated early in the morning of the 25th, the 7 a. m. observation on that day being the lowest to that time of the month in some of those counties, and among the lowest in them all; while it began later in the same day in the two counties on Hudson river (Washington and Dutchess,) the temperature on that morning, instead of the lowest, being among the highest of the month at that hour, and falling in each of them ten degrees from 7 a. m. to 2 p. m. The only frost registered was at Gouverneur, Saint Lawrence county, on the 18th and 31st, and not sufficiently severe to injure vegetation.

New England.—In these States the morning of the 25th, or the preceding night, was generally warm, and the decline of temperature began during that day, or early in the morning of the 26th. A light frost is reported at Lunenburg, Vermont, on the 17th and 18th, and at Wilmington, in the same State, on the 18th and 28th.

Besides the depression of temperature during the latter part of August, a similar period also distinctly appears on the registers about and previous to the middle of the month. On the 18th, at the time of the morning observation, at nearly all the stations from Maine to Illinois, the thermometer was lower than on any other day until the cold towards the end of the month.

THE EQUINOCTIAL STORM.

The registers for September, 1863, exhibit three periods interesting for comparison: one near the beginning of the month, one about the middle, and one towards the close. The most conspicuous of these was the rise of temperature about the middle of the month and the subsequent fall, giving at all the stations a decided elevation and depression, and at a large number of them the actual maximum and minimum of the month. This change of temperature was ac-

accompanied in all the States by rain, constituting what is popularly known as "the equinoctial storm." The compressed statements here given can present only some of the more prominent features, and those only to a very limited degree.

Nebraska.—The only register received from Nebraska is from Bellevue in Sarpy county. The rise of temperature began in the forenoon of the 13th. At 7 a. m. the thermometer (55) was below the average of the month, but at 2 p. m. it had reached 83 degrees, which was higher than it had been before during the month, and at 2 p. m. the next day was 93 degrees, which was the maximum. The mean of the 14th was 81 degrees, and of the 15th, (the warmest day,) 81½ degrees. In the forenoon of the 16th the temperature fell rapidly, descending from 72 degrees at 7 a. m. to 65 degrees at 2 p. m., and it continued to fall until it reached the minimum of the month, 37 degrees, at 7 a. m. of the 18th.

The mean temperature of the 18th, the coldest day, was 46 degrees. The wind on the 14th, 15th, and 16th was from the south, and changed on the 17th to the north by way of the west. Eight-tenths of an inch of rain fell on the 16th. Although the fall of temperature on the 16th was so decided, no change of wind is recorded until the next day.

Iowa.—At Algona, Kossuth county, the maximum of the month (95°) was on the 14th; on the 15th the temperature was higher at 7 a. m. and at 9 p. m. than on the 14th, but lower at 2 p. m., and the mean of each of these days (the two warmest of the month) was 77 degrees. The 18th was the coldest day, and the minimum was on the morning of the 19th, when ice was observed a quarter of an inch thick. On the night of the 15th sheet lightning was seen to the north, and on the 16th rain fell from 1 to 10 p. m. to the amount of three-eighths of an inch.

At Independence, Buchanan county, the maximum temperature and the warmest day were both on the 15th; the coldest day was the 18th, and the lowest temperature was on the morning of the 19th. Ice a tenth of an inch thick was seen on both the 18th and the 19th. Half an inch of rain fell on the 16th from 6 to 9 p. m.

At Dubuque the highest temperature at 7 a. m. and 2 p. m. was on the 16th and at 9 p. m. on the 15th. The 15th was the warmest day. On the 17th the temperature was lower at 2 p. m. than at 7 a. m. The coldest day was the 18th, and the lowest temperature was on the 19th. An inch and a half of rain fell on the 16th from 8.20 p. m. to 11 p. m.

At Lyons, Clinton county, the warmest day was the 16th, and the maximum temperature at 9 p. m. was on the 15th, but at 2 p. m. it was a little higher on the 27th and 28th. The coldest day was the 18th, and the lowest temperature was in the morning of the 19th. Two-tenths of an inch of rain fell on the 17th from 2 to 6 a. m. The observer remarks: "The thermometer went down very suddenly at 4 p. m. of the 17th." At 7 a. m. it stood at 62 degrees; at 2 p. m., 60 degrees; at 4 p. m., 48 degrees.

At Iowa City, Johnson county, and at Madison, Lee county, the highest temperature was on the 15th, which was also the warmest day; the coldest day was the 19th, and on the same day the lowest temperature also occurred, but not at the same hour; for it was at 7 a. m. at Iowa City, and at 9 p. m. at Madison. At Iowa City three-quarters of an inch of rain fell from 9 p. m. of the 16th to 7 a. m. of the 17th, and two inches at Madison from 9½ p. m. of the 16th to 2 a. m. of the 17th.

Throughout the State generally, so far as the registers show, the wind was from the south or a southerly direction on the 14th, 15th, and 16th, and on the 17th changed to the north or northwest. The fall of the thermometer from 9 p. m. of the 16th to 9 p. m. of the 17th was from 21 to 27 degrees, and there was severe frost on the 18th and 19th.

Wisconsin.—Registers have been received from Manitowoc, Madison, Beloit

and Milwaukee. At all these stations the maximum of the month was on the 15th; the 16th was the warmest day, the 18th the coldest day, and the minimum was in the morning of the 19th; except that at Madison the temperature rose to the same height on the 16th as on the 15th, at Manitowoc the mean of the 15th was one-third of a degree higher than on the 16th, and at Beloit the temperature on the morning of the 25th was two degrees lower than on the 19th. Rain is recorded at Milwaukee and Beloit on the 17th, and at Manitowoc on every day from the night of the 16th to the morning of the 21st, with a thunder-storm in the afternoon and night of the 16th, and snow on the 18th. No frost is recorded, but it probably appeared, as the minimum at all the stations was near or below the freezing point. The general remark may be made here for all the States, that a southerly wind prevailed during the warm days, and that the fall of temperature came with a change of the wind to the northwest or some northerly quarter.

Kansas.—Two registers have been received from Kansas. At Lawrence, Douglas county, the highest temperature of the month at 9 p. m. was on the 14th, and the same day was the warmest near the middle of the month; but on the 7th the temperature at 2 p. m. was three degrees higher, and the day was two-thirds of a degree warmer. The lowest daily mean was on the 17th and the 18th, which were the same, and the minimum of the month was on the morning of the 18th. A sixteenth of an inch of rain fell from 7 p. m. of the 16th to 3 a. m. of the 17th.

At Manhattan, Riley county, the highest temperature near the middle of the month was on the 14th, but it was one degree higher on the 10th and two degrees higher on the 7th. The warmest day of the same period was the 15th, but one day of the month (the 7th) was warmer. The highest temperature of the month at 7 a. m. was on the 15th. The coldest day of the month was the 18th, and the minimum was on the morning of the same day. On the 15th, at 7½ p. m., diffused lightning was visible in the southwest, and on the 16th a quarter of an inch of rain fell from 5½ to 9 p. m., accompanied by thunder and lightning.

Missouri.—At Harrisonville, Cass county, the maximum (98) occurred on the 14th and also on the 4th and 7th. The 14th was the warmest day except the 7th. The coldest day was the 18th, and the minimum temperature (48) was on the same day, except the 20th, when it was down to 46 degrees. Rain fell from 9 to 10¼ p. m. on the 16th. There was diffuse lightning on the evening of the 15th, and also with thunder on the evening of the 16th.

At Canton, Lewis county, the temperature of the 15th was 92 degrees, and the mean of the day was 80½ degrees. But there were higher temperatures and warmer days early in the month. The coldest day was the 19th, and the minimum (38) occurred on the same day. Rain to the depth of 1.38 inches fell from 2 a. m. to 5 a. m. of the 17th.

Illinois.—Registers have been received from eight different counties. The highest temperature and warmest day, during the period of high temperature in the middle of the month, was on the 16th at nearly all the stations, but at a few on the 15th. At four of the stations higher temperatures are recorded in the early part of the month. At three the 18th was the coldest day, and at five the 19th. The minimum also occurred on the days of lowest mean temperature, except at Upper Alton, where the lowest temperature at 7 a. m. on the 14th was 41 degrees, and on the 19th it rose to 45 degrees, and on the 20th fell again to 40 degrees, the minimum of the month.

Rain is recorded at nearly all the stations on the 16th, and at all on the 17th, except at Upper Alton, where there was "only a few drops" on the 16th. The fall of temperature at the different stations from 2 p. m. of the 16th to 2 p. m. of the 17th was from 24 to 33 degrees.

Michigan.—The registers are from Clifton, Lansing, Ypsilanti, and Monroe.

At all the stations the maximum was on the 16th, except at Ypsilanti, where the temperature was one degree higher on the 28th. At Lansing on the 28th and at Monroe on the 29th the temperature was as high as on the 16th. At all the stations the warmest day was the 16th, except at Clifton, where the mean of the 29th was one degree higher. At Clifton the coldest day of the month was the 18th; at the three other stations it was the 19th. At Clifton, (lat. 47°, long. 88°,) on the 16th, the temperature fell from 88 degrees at 2 p. m. to 36 degrees at 9 p. m., *fifty-two degrees*. The minimum was 20 degrees on the morning of the 18th. The observer says: "On the 16th, at 2.50 p. m., it commenced raining heavily, accompanied with lightning and distant thunder; for about one hour it poured down incessantly, a strong south-southwest wind blowing; one inch of rain fell during an hour." The rain continued until 4.45 p. m. of the 17th, and measured two and one-eighth inches. At all the three other stations the lowest at this period was at 9 p. m. of the 19th; but the minimum of the month occurred on the morning of the 26th. On the morning of the 22d the temperature was also very low.

Rain fell at all the stations on the 17th, and also a very light rain at Lansing on the afternoon of the 18th.

Indiana.—The registers from this State are from New Albany, New Haven, Rockville, and South Bend. The warmest day near the middle of the month was the 16th, and the highest temperature was on the 14th, 15th, and 16th. But warmer days and higher temperatures occurred earlier in the month. The coldest day of the month at all the stations was the 19th. At New Albany the minimum was on the 20th, and at the three other stations on the 19th. The principal part of the rain fell on the 17th.

Ohio.—Registers have been received from eleven stations, each in a different county. The highest temperature during the warm period in the middle of the month occurred at three stations on the 15th, at six on the 16th, and at two on the 17th; and at all the stations except two the maximum of the month was on the same days. The warmest day at all the stations except one was the same as that on which the maximum occurred. With three exceptions, the 19th was the coldest day; and at nearly all the stations the minimum was on the night of the 19th or morning of the 20th. In a few cases the depression towards the close of the month was lower than on the 19th and 20th. The fall of temperature from 2 p. m. of the 17th to 2 p. m. of the 18th was from 20 to 32 degrees. Rain is recorded principally on the 17th and 18th. Severe frosts are noticed on the 19th and 20th.

Maryland.—The only record is from Sykesville, Carroll county. The highest temperature at 7 a. m. and at 9 p. m. was on the 17th, which was also the warmest day of the month. At 2 p. m. the thermometer was higher on several days than on the 17th. The fall of temperature began in the forenoon of the 18th, it being three degrees colder on that day at 2 p. m. than at 7 a. m. After descending till the morning of the 21st the temperature rose on that day, but immediately fell again and descended to 43 degrees on the 23d, with a mean temperature for the day of 50½. This was the coldest day of the month except the 26th, and the minimum temperature was on the 28th. One inch and thirty-five hundredths of rain fell on the 18th.

Pennsylvania.—Registers have been received from five stations. The warmest day was the 17th. The highest temperature at 7 a. m. or 2 p. m. was on the same day. At Philadelphia, the warmest day and the maximum were on the 17th, and the highest at 7 a. m. was on the 18th. The register-thermometer there showed the same maximum on the 17th as on the 7th. The lowest daily mean, till after the temporary rise on the 21st, was the 20th.

At Canonsburg the temperature fell till the 20th, which was the coldest day of the month except the 26th. At 7 a. m. of the 19th the thermometer was 26 degrees lower than at the same hour on the 18th.

At Fleming the temperature fell 29 degrees from 7 a. m. of the 18th to 7 a. m. of the 19th; also, 15 degrees from 7 a. m. to 2 p. m. on the 18th, and 25 degrees from 2 p. m. of the 17th to 2 p. m. of the 18th. The coldest day until the thermometer commenced to rise again was the 19th, but it was colder afterwards.

At Harrisburg the coldest day following the warm 17th was the 20th; but, after a rise on the 21st, the temperature fell still lower.

At Nazareth the fall from the 18th to the 19th was 19 degrees at 7 a. m. and 20 degrees at 2 p. m. The daily mean decreased to the 20th, and rose again on the 21st. The minimum of the month and the coldest day were on the 23d.

Rain is recorded at all the stations, except Canonsburg, on the 18th or 19th. At Harrisburg 2.43 inches fell.

New Jersey.—The only register is from Newark, and the record is made from the maximum and minimum thermometers. The highest temperature was on the 17th, and the lowest following it was on the 21st, but the minimum of the month was later. There were light frosts on the 21st, 23d, and 24th. The rain was on the 17th, 18th, and 19th, and amounted to about three-quarters of an inch.

New York.—Registers have been received from five stations. At two of them the maximum of the month was on the 16th, and at three on the 17th. The warmest day was the 17th, except at one station, when the 16th was one-third of a degree higher. The coldest day following this high temperature was the 22d. The descent to this date was not continuous; the principal fall was till the 19th, after which the temperature rose again and then descended a little lower. The minimum of the month was still later. The fall from 2 p. m. of the 17th to 2 p. m. of the 18th, at Wilson, Niagara county, was 37 degrees; at Rochester, Monroe county, 20 degrees; at Skaneateles, Onondaga county, 20 degrees; at Theresa, Jefferson county, 4 degrees; and at South Hartford, Washington county, 28 degrees. At Theresa the fall was 26 degrees from 2 p. m. of the 18th to 2 p. m. of the 19th. Rain is recorded at all the stations on the 18th, and at Wilson and Theresa also on the 17th. The largest amount of rain registered was an inch and a quarter, at South Hartford.

Connecticut.—Registers have been received from two stations. At both the highest temperature at 7 a. m. was on the 18th. At Middletown the maximum of the month was on the 16th, and at Pomfret on the 16th and 17th. At both places the mean temperature of the three warmest days, the 16th, 17th, and 18th, continued very nearly the same, being for the respective days, at Middletown 72.3, 72.1, 72.2, and at Pomfret 69.3, 68.3, 69.3. The fall from 2 p. m. of the 18th to 2 p. m. of the 19th was 20 degrees at Middletown and 15 degrees at Pomfret. At both places the coldest day of the month and minimum temperature were on the 23d, and there was a rise on the 21st. At Middletown 1.32 inch of rain fell from the morning of the 18th to the morning of the 21st, and at Pomfret 2.10 inches from 1 p. m. of the 17th to the night of the 20th.

At Middletown, the observer remarks that on the 18th there was a "gale of wind with rain;" and at Pomfret, on the same day, from 4 to 7 p. m., "a violent storm from the south." At both stations the frost on the 23d is recorded as the first of the season.

Massachusetts.—Registers have been received from five stations. The maximum of the month at all the stations was on the 16th, and the highest, at 7 a. m., was on the 18th; at one station the temperature on the 9th, at 7 a. m., was the same as on the 18th. At Mendon, the warmest day was the 16th; at Amherst and Westfield, the 17th; at New Bedford and Topsfield, the 16th and 18th. With the exception of a rise in the mean of the 21st, the temperature descended steadily until the 23d, which was the coldest day of the month at all the stations except New Bedford, where the 25th was two-tenths of a degree

lower. The minimum temperature at all the stations was on the 23d; at one it was the same on the 24th as on the 23d. The rain was from the 18th to the 20th.

Vermont.—Registers have been received from five stations; at four of them the maximum temperature and highest daily mean were on the 16th, except one, where the daily mean was one-third of a degree higher on the 17th; and at one station the maximum and highest mean was on the 18th. The coldest day was the 22d, at all the stations, except one, where the 25th was two-thirds of a degree colder. There was a rise on the 21st. The minimum temperature at all the stations occurred on the morning of the 23d; at one it was as low on the night of the 22d. Rain is recorded from the 18th to the 21st. The frost on the 23d is noticed as "the first hard frost."

New Hampshire.—The registers are from Littleton and Stratford. At both stations the maximum temperature and the warmest day were on the 16th, and the coldest day was the 22d. At Littleton the minimum was on the 23d; at Stratford it was two degrees lower on the 28th than on the 23d. At Littleton the mean of the 19th was 21.4 lower than that of the 18th, and at Stratford, 20 degrees lower. At Littleton, rain is recorded on every day from the 19th to the 22d, but only half an inch in all; and at Stratford at 11½ a. m. on the 18th.

Maine.—Registers have been received from Cornishville, Steuben, and Williamsburg. The maximum temperature and highest mean at all three stations were on the 16th. At Steuben and Williamsburg the lowest mean was on the 23d, and at Cornishville on the 22d. The minimum temperature at Cornishville and Williamsburg was on the morning of the 23d; at Steuben on the morning of the 24th. The descent in the daily mean from the highest on the 16th, to the lowest, was without interruption, except at Steuben, where the 22d was a little higher than the 21st. Rain is recorded at Cornishville on the 18th, 19th, and 20th, 1.23 inch; at Steuben, on the 19th to the 22d, 2.50 inches; and at Williamsburg, on the 19th to the 21st, not measured.

MONTHLY REPORT
OF
THE DEPARTMENT OF AGRICULTURE,
FOR OCTOBER, 1863.

DEPARTMENT OF AGRICULTURE,
Washington, November, 1863.

In presenting the monthly report of the agricultural products of our country, the Commissioner of Agriculture gratefully acknowledges the deep and growing interest manifested by the farmers and Agricultural Societies in support of the unremitting exertions of the Department to develop that interest which underlies our national greatness, and which is productive of the most effectual means for securing peace, plenty, wealth, and power.

The extensive home and foreign correspondence of the Department, the samples of home and foreign grains, plants, bulbous roots, and cuttings, which it is constantly receiving and distributing, and the scientific and practical information received and imparted by it, has already manifested an extent of usefulness not looked for by its warmest advocates.

The Department is too limited in its means to cultivate the wide fields of usefulness awaiting its action. All its operations have been largely increased, and must be still more so, to meet the demands of the farmers of the country, who are now finding out that they have a Department which responds to their calls, and attends to their wants.

The collection of these monthly statistics, from over two thousand correspondents, is attended with great expense, especially since, by the Post Office law passed at the last session of Congress, the Department is obliged to send out *pre-paid* envelopes, instead of franks, for the returns. The limits of the Propagating Garden, and its capacity, are quite too small to supply the requirements made on it. All grains, seeds, and plants received by the Department to be distributed among the farmers should first be tested; to do this successfully, requires several acres of ground, and, through the kindness of the Commissioner of Public Buildings, permission has been given me to use about twenty acres adjoining the Smithsonian Institute, and the means of working it are required. These considerations are now strongly felt throughout the country, and Congress will not be slow in finding the temper of the people. It is my intention

to continue these statistical inquiries through the winter, covering various agricultural subjects, as cattle, horses, sheep, manures, fruit, agricultural machines, &c.

It was an object of the last monthly report to show the American farmers the foreign markets which purchase so largely of their breadstuffs, and in the present one they will see the extent of their purchases of the animal productions. It is due to them that they should have a clear idea of the relation of American agriculture with the commerce of the world. But they have been shut out heretofore from this knowledge, not only from want of proper statistical information of that commerce, but by the very terms daily used to point out the operations of this foreign commerce. The *quantities* sold, and the *prices* given for American agricultural products are habitually stated in foreign measures, as "quarters," which are unknown to the farming community, and in a currency, as "shillings," so unlike our own, that the farmers cannot determine their meaning. Hence they cannot follow the operations of commerce, but lose sight of their wheat and flour, pork and beef, almost as soon as they are carried from the farms.

To remove obstructions of this kind, now standing in the way of a complete knowledge of foreign commerce, I shall shortly present in my monthly reports all foreign measures and values in common use among us, reduced to the weights and measures, and the currency of our own country, in connexion with the amounts of our monthly exports of breadstuffs and provisions.

The importance of agriculture and the necessity for its management are obvious to all as a means of national prosperity.

The aim of this Department has been and will be to aid the farmers of the country in the advancement of their business, and to give them greater information of the productions and resources of this great country.

The successful close of the agricultural year furnishes us with renewed occasion for thanksgiving, and will be especially remembered on the approaching day set apart for that purpose by the President and the governors of the several States.

ISAAC NEWTON,
Commissioner.

THE TABLES OF THE CONDITION OF THE CROPS FOR OCTOBER.

In our last monthly report the returns of the leading *summer* and *fall* crops were given in bushels. The latter were formed not on answers to questions, asking the *amount* of the crops of 1863 compared with 1862, but on their general *appearance* only. In the circular for October inquiries were made of the *amount* of these fall crops, and from the answers the following table showing the corn, tobacco, buckwheat and potato crops for 1863 has been formed.

If there is anything that is gratifying to the Department, it is the remarkable confirmation which this table for October has to the correctness of that for September. By the latter the corn crop for 1863 was estimated at 449,163,894 bushels, and by that for October it is placed at 452,446,128 bushels—a difference of only 3,282,234 bushels. This is extraordinary, and gives the Department the

most satisfactory assurance that the mode adopted by it to estimate the amount of the crops results in far greater accuracy than the statistics taken at so great an expense.

But the September and October estimates of the crop of tobacco are still more extraordinary, although the difference is greater. In September we stated this crop at 258,462,413 pounds, and the table below shows it at 267,302,770 pounds—a difference of 8,840,357 pounds. The table for September, which was not published, but the entire amount given, was based on the returns to the September circular, giving the *appearance* and *injury* to the crop, and on the returns for June stating the average amount of acres of tobacco planted compared with 1862. Take into consideration the fact that the tobacco crop in the loyal States has increased in a most extraordinary degree, and very unequally in different States; that an unequal and extraordinary injury had fallen on it, and it will be seen whether the concurrence of the estimates for September and October made on answers to such different questions is not a test of the correctness of the system established by the Department and the skill with which it is carried out.

The differences in buckwheat and potatoes are also very small, and still further strengthen the reliance in the mode adopted for estimating the annual crops.

Estimate for October of the amounts of the corn, tobacco, buckwheat, and potato crops for 1863.

States.	Corn.	Tobacco.	Buckwheat.	Potatoes.
Maine	1,855,235	7,000	407,424	6,693,348
New Hampshire	1,835,113	50,000	98,995	3,310,163
Vermont	1,743,522	40,000	233,906	3,603,972
Massachusetts	2,465,215	5,200,000	123,302	2,881,711
Rhode Island	413,021	1,680	3,871	435,084
Connecticut	2,059,835	7,500,166	300,629	2,016,462
New York	24,073,257	10,088,017	5,378,675	29,753,393
New Jersey	11,025,669	194,330	947,577	4,693,151
Pennsylvania	30,721,821	5,567,774	5,794,907	14,609,335
Maryland	14,444,922	48,721,415	218,405	1,213,707
Delaware	3,892,337	15,618	18,399	302,345
Kentucky	52,835,997	113,912,938	14,187	1,449,138
Ohio	57,433,802	23,081,869	827,364	4,103,005
Michigan	10,633,097	207,061	630,457	4,738,260
Indiana	54,602,273	10,416,314	183,898	3,485,617
Illinois	83,013,681	20,397,537	258,802	5,155,523
Missouri	43,743,295	26,340,505	95,703	1,493,519
Wisconsin	8,069,642	153,189	59,170	4,356,568
Iowa	34,538,276	300,402	155,914	2,880,549
Minnesota	2,756,898	43,324	20,758	2,433,534
Kansas	8,518,251	26,881	27,966	425,952
Nebraska Territory	1,292,750	1,900	6,146	124,334
California	478,169	34,850	14,850	1,298,474
Total	452,446,128	267,302,770	15,821,305	101,457,144
Estimated in September report ..	449,163,894	258,462,413	17,193,232	97,870,035

Sorghum molasses.—In 1860 the number of gallons of this molasses produced in the loyal States was 5,860,801, of which the chief part was made in Missouri, Iowa, Illinois, Indiana, and Ohio. This amount was at least doubled in 1862, which would give these States the amounts in the following table. The first column shows the amount for 1862, and the second the estimated amount for 1863, based on the returns as seen in the table of this report.

	1862. Gallons.	1863. Gallons.
Missouri	1, 552, 202	1, 241, 762
Iowa	3, 986, 948	1, 993, 474
Illinois	1, 594, 192	996, 371
Indiana	1, 655, 554	1, 324, 443
Ohio	1, 414, 832	1, 414, 832
	<hr/> 10, 203, 728 <hr/>	<hr/> 6, 970, 882 <hr/>

This is a decrease of about three and a quarter millions of gallons, or nearly one-third. The product of this year will not much exceed between eight and nine millions of gallons. That there were large quantities of maple molasses made last spring is quite certain, but not at all enough to meet the inland wants. Prior to the war, this country had become one of the greatest sugar-consuming on the globe, as will be seen from the following statistics:

IMPORTS OF MOLASSES AND SUGAR.

	Molasses, (gals.)	Sugar, (lbs.)
1856	23, 617, 674	545, 262, 754
1857	32, 705, 844	777, 063, 185
1858	24, 566, 357	519, 240, 945
1859	32, 818, 146	655, 868, 415
1860	30, 922, 633	694, 879, 785
1861	29, 941, 397	807, 938, 946

The molasses of the Louisiana cane was then about 16,000,000 gallons annually, and the sugar from it about 300,000,000 pounds; making the annual consumption of molasses about 45,000,000 million gallons, and of sugar 1,000,000,000 pounds.

The ratio of increase in population and of the consumption of sugar since 1840 has been as follows:

	Population.	Sugar.
1840 to 1845	16 per cent.	50 per cent.
1845 to 1850	16 per cent.	34 per cent.
1850 to 1855	16 per cent.	100 per cent.
1855 to 1860	15 per cent.	43 per cent.
Total	<hr/> 63 per cent. <hr/>	<hr/> 227 per cent. <hr/>

In 1840 the consumption of sugar for each inhabitant was 16 pounds, and in 1860, about 39 pounds.

Although Louisiana has been in possession of the loyal forces, yet the estimated amount of the hogsheads of sugar that will be produced by it this year is placed at from 30 to 50 thousand hogsheads only, not a tenth part of what it was. The season has been favorable for the growth of cane, yet want of labor, high price of wood, and all things necessary for running the mills, render it cer-

tain that sugar cannot be made in Louisiana at prices which can compete with that produced in the West Indies and South American ports.

To render this country independent in its supply of sugar and molasses is an object second to none other that can engage the attention of the farmer or manufacturer. Hence the following account, from a recent number of the *Prairie Farmer*, published at Chicago, of an attempt made to cultivate the sugar beet on an extensive scale, and to manufacture sugar from it, must arrest the attention of every reflecting person :

“Mr. T. Gennert, of the firm of Gennert Brothers, of New York city, had made a journey to Germany, carefully investigated for himself the cultivation of the beet and the minutia of manufacture, being afforded every facility compatible with the rules of the association of manufacturers. He fully decided to make the experiment on a scale which should thoroughly prove the matter in this country. Having previously travelled over nearly all the States of the Union, making himself familiar with the soils of the country, he decided to locate in Illinois. After having spent some time in examining locations so as to secure suitable land, cheap fuel, &c., he made choice of a location at Chatsworth, Livingston county, situated on the line of the Peoria and Oquawka railroad, between the main line and Chicago branch of the Illinois Central railroad, about one hundred miles distant by rail from Chicago. Contracting for two sections of land, the brothers at once commenced to prepare for a crop of beets and to erect a factory, a cut of which appears on our first page. Knowing the importance of a thorough preparation of the ground, they at once procured the necessary ploughs and teams to turn up and pulverize the ground to the depth of *one foot*, not eleven inches. It was mostly done by the Michigan doubleplough; a part of it was ploughed last fall and a part in the spring. About one hundred acres were prepared at a very heavy expense.

“The seed planted was imported by them from the most reliable sources—and planted, some of it being drilled in, others sowed in drills—and notwithstanding the excessive drought and the unfavorable weather of the spring, which delayed the planting of a large part of it until quite late, the excessive drought of the summer, and the early frosts, they have now on the ground a crop which will yield in quantity as much as the average of the best fields of Europe. As to the quality in saccharine properties, an analysis of them made last week by Mr. Bender, of this city, shows $12\frac{1}{2}$ per cent. of crystallizable cane sugar, and $3\frac{1}{2}$ per cent. of other soluble impurities—of which, at least, 8 or 9 per cent. of sugar should be extracted, at which rate the yield of it would be from 2,500 to 3,000 pounds per acre.

“The building occupies a ground space of one hundred and fifty by one hundred feet, and the tower and main part a height of fifty feet—the whole being constructed in the most thorough and substantial manner: the supporters of each floor are entirely independent of the main frame of the building, and each floor independent of the others, so that in case of overloading any one the building has no strain.

“The machinery is driven by two engines—a large and powerful one for driving the graters, centrifugals, washers, &c.; a smaller one for the pumps and vacuum-pan. The machinery for grating and swinging out the juice have been imported from Germany, and are the best and most improved in use there, and we cannot doubt that abundant success will crown the labors of the Messrs. Gennert Brothers, who have been the first in the Union who were willing to risk so large a sum of money as was necessary (about \$50,000) to make the experiment.”

This first endeavor to establish the manufacture of sugar from the beet in the United States will be regarded with deep interest, for if successful it will add another important branch to northern agriculture.

THE CROPS FOR 1864.

These are wheat, rye, barley, and timothy meadows. The table shows a most gratifying account, both of their amount and appearance. The fall has, in almost every section of the several States, been propitious, and despite the large amount of agricultural labor now in the armies, there is a full average of these important crops sown. The agriculture of the loyal States, therefore, is starting fairly for success in 1864.

FATTENING HOGS AND CATTLE.

No more important matters could be presented in our monthly report than the number and condition of these, because they constitute the provision trade of the country, and supply so great consumption of our armies. The inquiries relative to them are, *first*, the existence of the hog cholera; and *second*, the *number and condition* of the fattening hogs and cattle.

The hog cholera has very little existence in the eastern and middle States. It is more or less in nearly all the western States, and is enough spread in the great hog-raising States of Illinois and Indiana to prove very fatal among the hogs driven on the alluvial lands to fatten. In 1860 these two States had 4,778,250 hogs, being a seventh of the entire number raised in the United States, at that time. Should the cholera spread among the hogs collected on the fields, many must die, and our reports indicate the loss of many in these States during the summer and fall.

The report for September showed the usual number of stock hogs in the country; but the tables of October exhibit the fact, that whilst there is a general average fattening in the northern and middle States, there is a large falling off in the greatest hog-producing States. In Ohio, Michigan, Indiana, and Illinois, there are but eight-tenths of the number of last year. To arrive at the probable reduction in these States, the census returns of 1860 must be taken as a basis, for this Department has not yet formed an estimate of the farm stock for 1862, as it has done of the farm crops. In Ohio, there were 2,175,623 hogs in 1860, and in Michigan 374,664, making, with the above number for Indiana and Illinois, 7,328,537 hogs. Add to these ten per cent. for the increase since that year, and the present number would be 8,061,390. The usual allowance between the fattening hogs and the whole number is *one-half*, which would give 4,030,695 as the number that should be now fattening. But two-tenths, or twenty per cent., are withheld, because of the scarcity of corn, amounting to 806,139 hogs.

But the condition of the hogs in these four States is yet lower than their numbers. In Michigan, Illinois, and Indiana, the tables show it to be seven-tenths, or 30 per cent. below the average condition. In Ohio it is 20 per cent. below. For the purpose of showing how far it is possible for hogs to reach either their usual numbers or attain a weight at all approaching to the customary standard, we here introduce a few extracts from letters coming from the best fattening districts in these States:

"The number of fattening hogs *raised* in this county is probably about the same as last year, but then many were brought in from other counties to use up the surplus feed. This year I do not know of a single hog being fed, except the farmers' own raising."

"Much of the corn has very little effect in fattening hogs. All that can sell are selling their hogs, so as to save their corn. There will be but few fat hogs taken from out the county compared with last year."

"Our farmers think the corn crop is fully one-half shortened, and so much injured that it is of little value for fattening purposes. Less than one-half the number of hogs will be well fattened in this county."

"The condition of the county is alarming, in view of the shortness of the crops compared with the amount of live stock that is unfit for market, and must necessarily be passed through the coming winter."

"In regard to the frosts of September, the effect has been to injure our corn about one-half for feeding cattle, and nearly to destroy it for selling or feeding to hogs."

"Hogs and cattle consume a large amount of corn, and will make growth, but little fat. The result will be light pork, and but few heavy fat cattle."

"The corn appears to make hogs grow when fed to them, but does not form lard. Large numbers have been imperfectly fattened and sold already. In some cases the hogs have been well fatted, but it has been upon peas mostly, of which larger quantities have been raised than heretofore."

"The corn has no strength. Fattening cattle are yet in the fields, and in about an average condition; but few will be corn-fed, as the price of beef here is not by any means in ratio with the price of corn."

These extracts, as well as the tables, go clearly to show that the frosted corn

cannot fatten hogs more than to give a limited supply of lard. The returns made to this department indicate that the demand for butter has been everywhere in excess of the supply; and it must, therefore, be obvious that lard will reach the highest possible price compatible with but a limited consumption.

This view is taken by those engaged in the provision trade. The New York Price Current of November 14 says: "There has been an active movement in new mess pork, mainly on speculation and for future delivery; and with light arrivals, prices have advanced 50 cents: other descriptions have also been in good demand for consumption and export, at slightly improved prices." The Cincinnati Price Current of the 11th says: "New mess pork is held at \$17 50. The belief is *that but few hogs will be fit to make mess pork*, and hence the speculative feeling in that article here and elsewhere." Hogs were then selling at the latter city at \$5 75 to \$5 90, averaging under 200 lbs., and those averaging 200 lbs. and upwards, at \$6 to \$6 25. The provision trade seems to be active at Chicago and other points.

The fattening cattle.—Our tables show in these four great fattening States a like falling off in the number of fattening cattle. In Illinois—by far the greatest cattle-fattening State in the Union on account of its immense corn crop, a State that supplies the New York market with most of its spring beef—the number of cattle is seven-tenths, or thirty per cent., less than last year. The condition of the cattle is some better than that of the hogs, for the fall pastures were good in many places, but cut short by drought in some parts. In Ohio, Michigan, and Indiana, it is eight-tenths, or twenty per cent. below an average condition, but in Illinois but ten per cent. below it. The scarcity of good corn in these States must give unsatisfactory beef cattle, and the yield of tallow will be short.

The exports of provisions, &c.—domestic consumption.—The exports from the animal production of the United States, including such manufactures from it as butter, cheese, candles, soap, leather, boots and shoes, are as follows:

1856.....	\$21,411,900
1857.....	20,593,413
1858.....	19,946,411
1859.....	17,602,413
1860.....	21,666,798
1861.....	27,715,392
1862.....	42,288,916

The amount of this exportation is pretty equally divided between the hogs and cattle; but of the sale of beef and pork, bacon, and lard, the amount is largely in favor of the hogs.

It is difficult to present the relative amounts consumed in the foreign and home markets, for want of statistical information. But the following statement of the estimated hog product for 1860, and the place of its sales, will present a general idea of them:

The estimated amount of pork, in that year, which entered into the commerce of the country, was, in pounds..... 523, 358, 800

Of which were exported as follows:

Bacon, pounds.....	25, 844, 610
Lard, pounds.....	40, 289, 519
Pork, barrels, pounds.....	20, 231, 900
Pork, tierces, pounds.....	542, 976
	<hr/> 86, 909, 005

Leaving for domestic consumption.....	436, 449, 795
Of this the southern States consumed.....	184, 386, 409

Consumed in the eastern, western, and middle States, pounds ..	252, 063, 386
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It will be seen that the export of provisions increased largely in 1862. This was owing partly to the short crops in England, but chiefly to the fact that the pork trade with the south being cut off, the price fell ruinously low upon the western States. These prices induced foreign buyers, so that in 1862 we find the exports as follows:

Bacon, pounds	141, 212, 786
Lard, pounds	118, 573, 307
Pork, barrels	30, 594, 900
Pork, tierces	705, 672
	<hr/>
In 1860	291, 086, 665
	<hr/>
Increase	86, 909, 005
	<hr/>
	204, 177, 660
	<hr/>

Such is the immense pork trade of the United States, so vital to the great corn-growing States of the west. The Department has as yet no statistics by which to estimate the value of it, or that of the slaughtered cattle. It is expected that statistics will be collected by it during the ensuing winter, upon which not only these, but all other farm stock, can be numbered and valued.

Old corn.—The amount of old corn in the country is much less than usual. This was to have been expected from the high prices during the summer, caused by the consumption of the army. In Pennsylvania, Ohio, Michigan, Indiana, Illinois, Missouri, and Wisconsin, the tables return but *seven-tenths* of that of 1862. This is 30 per cent. less. In Iowa it is 20 per cent. less. It appears to be fed out to stock in nearly one-half the counties of these States. But the rapidly increasing value of corn will soon stop it.

The value of the frosted corn.—It will be seen that our correspondents regard the frosted corn as wanting the usual fattening properties belonging in so high degree to this grain. Analysis shows that it has 3.88 grains of oil in the 100, and 41.85 of starch. The oil does not seem to be formed only at the close of a vigorous and perfect growth, with a moist ground and hot sun, and the starch chiefly in the last month of its growth. The analyses of Dr. Salisbury show that the sap continues in full flow until between the first and middle of October. The following shows the amount of water in the grain at the times mentioned:

August 30	90.80
September 18	78.75
October 1	85.50
October 18	8.45

The killing frosts were on these first two dates, showing that the growth was stopped nearly two months before the close of the maturing season. All our accounts represent the grain as ceasing to receive any sap from the stalk after the blades were all killed. Hence all the nutritious elements in it are those only when the killing frost fell, which was too early for the grain to have any more than a small portion of starch and no oil.

The weather.—The returns of the condition of the weather, *each week*, in the month of October, show a favorable state, especially for the fall crops. There is enough of wet weeks with the favorable and dry to have kept these crops well growing, and the fall pastures up until the last of the grazing season. A remarkable snow fell on Thursday, the 22d of October. It seems to have been of a like character of the frosts of August 30 and September 18, and to have covered much of the same portions of the country. These three great northern waves of cold will constitute a meteorological phenomenon of great interest to the farmers of the Mississippi valley, for they clearly show that this valley has

a climate differing materially from like latitudes of the eastern and middle States, which our isothermal lines, because of their generality, do not designate. What we need much is a line of observers north of Lake Superior, that this wave of cold air may be traced as far north as possible.

At Green Bay this snow-storm is thus noticed: "On Thursday, the 22d, at noon, the weather being mild and the ground wet, snow commenced to fall, and continued without cessation until after dark, Friday evening. The snow did not gather much upon the ground until nearly night, Thursday; but on Friday night was full twelve to fourteen inches deep, damp and heavy." At St. Louis the snow was from five to six inches deep, and extended as far south, it is said, as Memphis. It seems to have had no great eastern extension, and how far west we are unable to say.

The annual agricultural report.—This report would have been distributed last week, had the binding of the volume not been delayed by the strike of the binders in the government employ. It is presumed that arrangements will soon be made to resume the work on the binding.

The monthly report for September has received a very general notice, and as favorable as it is general. The purpose of the Department in the collection and publication of the condition and amount of the crops, and the manner in which that purpose has been carried out, has met with such uniform approbation as not only to be gratifying to the Commissioner of Agriculture, but to those correspondents, also, upon whom the Department is dependent for the chief information embodied in the reports.

English grain measures.—In our reference to the English quarter of grain, in the monthly report for September, page 4, it is stated that the quarter is 560 pounds, being a quarter of a ton of 2,240 pounds—equal to eight English bushels of 70 pounds each, or nine and one-third American bushels of 60 pounds each.

To this statement objections have been made. It is contended that the English imperial bushel is 60 pounds of wheat, and that, therefore, the quarter is the eight bushels of measures of *capacity*, being 480 pounds, and not the quarter of a ton of *weight*, 560 pounds.

The question is not without obscurity, and hence we now briefly give the reasons of our statement.

Webster thus defines the meaning of the word "quarter:" "3. In *dry measure*, the fourth of a ton in weight, or eight bushels of grain, is a quarter of wheat; also the fourth part of a chaldron of coal."—*Hutton*.

He defines the word *bushel* as a *dry measure* containing eight gallons. The *Winchester* bushel, used in England from the time of Henry VII to 1826, contains eight gallons of wheat; each gallon eight pounds of wheat, *troy* weight; the pound, twelve ounces troy; the ounce, twenty sterlings; and the sterling, thirty-two grains of wheat growing in the middle of the ear. The contents are 2,150.42 solid inches.

In 1826 Parliament established the *Imperial* bushel as the standard of dry measures, and it contains 2,218.192 cubic inches. Thirty-three Winchester bushels are equal to thirty-two Imperial bushels. The act declares that one pound troy weight, containing 5,760 grains, shall be the standard measure of weight, and that 7,000 such grains should be a pound avoirdupois.

Wilson, in his *Rural Encyclopædia*, (English,) says: "One Imperial bushel of fine wheat will weigh sixty-three pounds, but inferior sorts will not exceed fifty-three pounds. The average weight is rated at sixty pounds."

The English Imperial bushel is $58\frac{1}{2}$ pounds, computed by the weight of grains, and the Winchester bushel 48 pounds, avoirdupois weight. Thus, eight pounds of wheat make one gallon, and eight gallons a bushel; equal to 64 pounds of 12 ounces, making 768 ounces. Divide sixteen into this sum, to reduce it to a bushel avoirdupois weight, gives 48 pounds. The Imperial bushel being $10\frac{1}{2}$

pounds more, the standard, strictly, would be $48\frac{1}{3}$ pounds; but 60 is that in use, because of the different weights of wheat having the same bulk.

Mr. Woolhouse, in his excellent little work on the weights, measures, and moneys of all nations, says: "The weights and measures of the United States are precisely the same as those of Great Britain, with the exception of the *measures of capacity*, for which the old standards are retained. Thus the unit of dry capacity is the old Winchester bushel."

Webster also says: "The Winchester bushel is used still in the United States." But our Winchester bushel of wheat is 60 pounds, and as the Imperial bushel of wheat, nominally 60 pounds also, is 10 pounds greater, it is 70 pounds of our standard, our weight of the gallon of wheat being heavier; and eight such bushels, or 560 pounds, being equal to a quarter of a ton, the English quarter of wheat becomes such quarter, and not the two coombs of the English measure of capacity. Hence Webster's definition that the word quarter is a dry measure, the fourth part of a ton in weight, or eight bushels of grain.

Difficulties of this kind must always be recurring, until Congress will do for *measures* and *weights* what it has done for the *moneys* of the United States—sweep away the pounds of troy and avoirdupois weight, the twelve inches of the foot, and make 10 or 100 the unit for these, as it has done in our currency. The numeral figures are the same in all nations, and in them alone should be the common standard of weights, measures, and moneys. Other nations would follow our precedent, and thus common standards obtain throughout the commercial world.

Imports and Exports for New York.

For the ten months of 1863, from January 1 to November 1, the *imports* at

New York have been.....	\$155,000,000
Add 40 per cent., as difference between gold and currency.....	62,000,000
Total value of imports.....	217,000,000
The <i>exports</i> for the same time were.....	145,000,000
Balance against the United States.....	72,000,000

To meet this the exports of specie have been :

From New York.....	\$39,000,000
From California.....	25,000,000
	64,000,000
Balance due for imports.....	8,000,000

The exports of breadstuffs, from September 1 to November 13 at New York, and to November 10 at Philadelphia, Baltimore, Boston, and California, have been as follows, in each of the following years, to Great Britain and Ireland :

	Flour.	Meal, (bbls.)	Wheat.	Corn.
1863.....	230,734	-----	3,367,916	239,459
1862.....	220,676	50	9,444,579	1,879,175
1861.....	240,994	300	4,231,048	3,167,776
1860.....	584,116	2,413	7,799,056	927,990

To the *Continent*, during the same period:

1863.....	22,613	None.	128,295	-----
1862.....	37,021	-----	535,189	5,218
1861.....	340,586	-----	4,892,423	221,113
1860.....	13,596	-----	96,660	5,000

These tables show a heavy decrease of our exports in wheat and corn, and nearly the same amount of flour.

Table of the amount, condition, &c., of the crops for the month of October, 1863.

STATES.	CORN.		TOBACCO.		SORGHUM.		BUCK-WHEAT.		COTTON.		POTATOES.		WHEAT.	
	Average amount of crop compared with 1862.	Injury to grain from all causes.	Average amount of crop compared with 1862.	Injury to leaf from all causes.	Average am't of molasses compared with 1862.	Injury to crop from all causes.	Average amount of crop compared with 1862.	Injury to grain from all causes.	Average amount of crop compared with 1862.	Injury to crop from all causes.	Average amount of crop compared with 1862.	Injury to crop from all causes.	Av. am't land sown compared with fall of 1862.	Average condition of crop during October.
Maine.....	10	$\frac{1}{2}$	14	1	.....	.....	9	1	.....	.....	9	3	9	9
New Hampshire.....	11	1	10	1	.....	.....	10	.....	.....	.....	8	3	10	10
Vermont.....	11	1	16	.....	.....	.....	10	1	.....	.....	7	3	10	9
Massachusetts.....	10	1	13	1	.....	.....	10	$\frac{1}{2}$	.....	.....	9	$1\frac{1}{2}$	10	10
Rhode Island.....	9	1	12	.....	.....	.....	10	.....	.....	.....	8	2	10	10
Connecticut.....	10	1	10	.....	10	.....	9	$1\frac{1}{2}$	.....	.....	11	2	13	11
New York.....	10	1	14	$\frac{1}{2}$	10	.....	9	$1\frac{1}{2}$	.....	.....	9	$2\frac{3}{8}$	10	10
New Jersey.....	11	$\frac{1}{2}$	12	.....	15	$\frac{1}{2}$	9	2	.....	.....	10	$1\frac{1}{4}$	10	9
Pennsylvania.....	10	$1\frac{2}{3}$	14	$1\frac{1}{2}$	11	1	$8\frac{3}{8}$	3	.....	.....	10	$1\frac{1}{2}$	10	10
Maryland.....	10	2	12	$1\frac{1}{4}$	13	$\frac{1}{2}$	9	$1\frac{1}{4}$	15	2	8	$3\frac{1}{2}$	10	10
Delaware.....	10	2	14	1	11	$1\frac{1}{2}$	10	2	5	3	8	4	10	9
Kentucky.....	11	2	$14\frac{1}{2}$	3	10	2	10	2	11	8	11	$\frac{1}{2}$	11	9
Ohio.....	8	$2\frac{1}{3}$	11	$2\frac{1}{3}$	10	$2\frac{3}{8}$	7	$4\frac{1}{2}$	.....	.....	8	3	10	10
Michigan.....	7	3	14	$3\frac{1}{2}$	9	5	7	$5\frac{1}{2}$	.....	.....	9	2	10	9
Indiana.....	6	5	$11\frac{1}{2}$	4	8	4	5	7	12	7	8	3	11	10
Illinois.....	6	5	11	4	$6\frac{1}{4}$	$4\frac{3}{8}$	6	7	9	$6\frac{3}{8}$	8	4	10	9
Missouri.....	8	2	14	3	8	$2\frac{1}{2}$	7	4	20	8	10	2	9	8
Wisconsin.....	8	3	14	$3\frac{1}{2}$	9	$4\frac{1}{2}$	7	4	.....	.....	9	2	11	9
Iowa.....	7	4	8	4	5	$4\frac{1}{2}$	6	6	.....	.....	8	$3\frac{1}{2}$	11	10
Minnesota.....	6	$4\frac{1}{2}$	8	5	8	5	6	5	.....	.....	9	3	10	$9\frac{2}{3}$
Kansas.....	$12\frac{1}{2}$	$1\frac{1}{3}$	$12\frac{2}{3}$	3	12	$1\frac{1}{3}$	$6\frac{1}{3}$	4	19	$2\frac{1}{8}$	12	2	$8\frac{1}{3}$	$6\frac{1}{2}$
West Virginia.....	9	$\frac{1}{2}$	8	1	10	.....	8	$\frac{1}{2}$	.....	.....	10	.....	11	.....
Nebraska Territory.....	7	3	5	5	7	3	5	5	.....	.....	7	3	10	10

Table of the amount, condition, &c., of the crops for the month of October, 1863.

STATES.	RYE.		BARLEY.		TIMOTHY MEADOW.		FODDER AND HAY.		HOG CHOLERA.	
	Average amount of land sown compared with fall of 1862.	Average condition of crop during October.	Average amount of land sown compared with fall of 1862.	Average condition of crop during October.	Average amount of timothy meadow sown compared with fall of 1862.	Average condition of same during October.	Average amt't of fodder compared with 1862.	Average amount of hay compared with 1862.	Average No. of hogs that died of cholera this season in the county.	Is this disease in the county now? Yes or no.
Maine.....	9	10	10	7	10	11	10	10	.....	Yes. No. 10
New Hampshire.....	9	10	11	8	10	11	11	11	.....	6
Vermont.....	10	9	10	9	10	10	12	12	.....	11
Massachusetts.....	10	10	10	10	10	11	11	10	.....	11
Rhode Island.....	11	10	10	.....	10	10	10	10	.....	3
Connecticut.....	10	11	10	9	11	10	11	10	.....	2
New York.....	10	10	8	10	11	9	11	10	.....	1 36
New Jersey.....	10	9	10	10	10	10	9	8	.....	11
Pennsylvania.....	10	10	10	9	10	9	9	7	.....	2 38
Maryland.....	9	9	10	10	10	10	9	8	.....	1 11
Delaware.....	10	9	10	10	9	10	9	9	.....	3
Kentucky.....	10	10	11	10	10	10	8	9	.....	1 5
Ohio.....	10	10	10	10	10	9	8	6½	.....	4 46
Michigan.....	10	10	10	10	10	10	7	8	.....	1 18
Indiana.....	10	8	10	9½	10½	10	9	8	.....	17 28
Illinois.....	9	9½	10	9	10	10	8½	7½	.....	23 34
Missouri.....	9	8	9	7	8	8	9	8	.....	5 4
Wisconsin.....	10	10	11	10	11	10	9½	8½	.....	19
Iowa.....	10	10	10½	10	11	9	10	7	.....	5 35
Minnesota.....	9	9	12	.....	9	9½	8	9	.....	11
Kansas.....	9	7	10	7	11	8	11½	12	.....	1 4
Nebraska Territory...	10	.....	.....	12	8	.....	8	6	.....	1
West Virginia.....	10	10	10	10	.....	.....	9	9	.....	1

Table of the amount, condition, &c., of the crops for the month of October, 1863

STATES.	FATTENING HOGS.		FATTENING CATTLE.		OLD CORN.			WEATHER.				
	Average number of fat- tening hogs compared with 1862.	Average condition of fat- tening hogs on Novem- ber 1.	Average number of fat- tening cattle compared with 1862.	Average condition of fat- tening cattle on No- vember 1.	Average amount of old corn on hand compared with fall of 1862.	Is this corn fed to fatten- ing stock or not? Yes or No.		Favorable.	Dry.	Very dry.	Wet.	Very wet.
Maine	10	10	9	10	9	Yes. 2	No. 7	20	6	....	18	12
New Hampshire	10	10	9	10	8	6	2	19	6	....	7	4
Vermont	9	10	10	9	9	3	6	35	9	....	....	....
Massachusetts	10	10	10	10	10	3	5	34	4	....	9	1
Rhode Island	10	10	9	10	10	2	1	11	....	....	1	....
Connecticut	11	10	9	11	9	2	....	16	6	....	2	....
New York	10	10	10	10	8	22	14	94	34	5	36	2
New Jersey	10	10	10	10	8	3	6	32	8	2	5	1
Pennsylvania	9	10	10	9	7	17	22	106	25	....	21	4
Maryland	9	9	9	9	10	1	8	27	12	....	5	....
Delaware	10	10	8	9	8	....	3	7	3	1	1	....
Kentucky	8	10	8	9	8	2	4	8	5	....	9	2
Ohio	8	8	8½	8	7	17	35	126	56	17	33	....
Michigan	8	7	8	8	7	9	13	36	33	2	21	1
Indiana	8	7	8½	8	7	11	33	86	30	11	42	3
Illinois	8	7	7	9	7	17	36	87	54	12	63	4
Missouri	7	8	8	8	7	5	3	11	11	4	6	....
Wisconsin	9½	9½	10½	9	7	13	5	31	28	....	31	2
Iowa	9	8	9	9	8	24	14	50	44	6	48	....
Minnesota	9	8	12	10	7	3	9	13	16	6	9	....
Kansas	11½	10	11½	10	5	2	4	2	1	15	4	....
West Virginia	8	11	9	11	6	....	1	1	3	....	4	....
Nebraska Territory...	10	9	12	10	9	....	1	....	1	3	....	....

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of October, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this October compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for October, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND RAIN OF OCTOBER, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornishville	York	G. W. Guptill	1	72	27	23	49.4	4.12
Waterville	Kennebec	B. F. Wilbur						4.55
Williamsburg	Piscataquis	Edwin Pitman	1	74	26	25	48.6	6.18
Foxcroft	do.	Mark Pitman	1	72	29	24	47.4	6.46
Linneus	Aroostook	A. G. & Miss Young	1	72	29	13	47.3	2.37
NEW HAMPSHIRE.								
Plymouth	Grafton	Jabez S. Ryan	18	74	29	22	56.0	4.60
North Littleton	do.	Rufus Smith	19	64	28	11	37.1	-----
Littleton	do.	Robert C. Whiting	19	72	29	18	47.5	2.43
Stratford	Coos	Branch Brown	1, 19	69	27, 29	16	41.3	3.98
Claremont	Sullivan	Arthur Chase	19	72	29	21	49.0	3.95
VERMONT.								
Burlington	Chittenden	McK. Petty	18	68	27	21	46.7	3.90
Rutland	Rutland	Stephen O. Mead	4	80	27	18	49.4	-----
Craftsbury	Orleans	James A. Paddock	1	70	27	18	44.4	2.90
Wilmington	Windham	C. T. Alvord		79		41	55.9	5.38
Brandon	Rutland	David Buckland	18	76	28	21	50.6	2.88
Springfield	Windsor	Rev. J. W. Chickering	19	74	29	18	50.0	4.25
MASSACHUSETTS.								
Mendon	Worcester	Jno. George Metcalf	18	72	27	28	53.1	3.10
New Bedford	Bristol	Samuel Rodman	1	73	29	33	54.8	1.09
Westfield	Hampden	Rev. Emerson Davis					48.9	5.26
Topsfield	Essex	John H. Caldwell	1	72	29	30	52.3	3.07
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell	1, 15	72	27, 29	29	51.4	2.97

Temperature and rain of October, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
CONNECTICUT.								
Pomfret	Windham	Rev. Daniel Hunt...	1, 15	70	27	27	50.0	5.16
Middletown	Middlesex	Prof. John Johnston.	18	75	29	23	51.0	3.34
NEW YORK.								
Fishkill Landing....	Dutchess	Wm. H. Denning....	15	72	29	26	50.6	4.36
South Hartford	Washington	G. M. Ingalsbee	2	79	29	21	53.6	2.60
Skaneateles	Onondaga	W. M. Beauchamp....	1	74	28	21	46.1	.....
Theresa	Jefferson	S. O. Gregory	18	76	28	19	45.9	3.87
Rochester	Monroe	Dr. M. M. Mathews....	18	76	29	26	48.4	2.72
Buffalo	Erie	William Ives	1	76	26	25	48.0	4.00
Clinton	Oneida	Dr. H. M. Paine	18	79	28	22	51.1	2.97
Wilson	Niagara	E. S. Holmes, D.D.S.	18	69	26, 29	26	48.2	.....
NEW JERSEY.								
Passaic Valley	Passaic	William Brooks	15, 18	72	29	24	51.9	7.65
Newark	Essex	W. A. Whitehead....	1, 2, 3, 4	69	29	30	51.8	3.45
Somers' Point	Atlantic	Dr. & Mrs. J. B. Somers	4	79	27	31	58.5	2.46
PENNSYLVANIA.								
Nazareth	Northampton	L. E. Ricksecker	15	78	26, 28	31	54.4	.....
Harrisburg	Dauphin	John Heiseley, M.D.	15	72	29	34	51.1	5.60
Fleming	Center	Samuel Brugger	18	76	26, 28	22	49.2	6.63
Tioga	Tioga	E. T. Bentley	16, 18	76	29	17	47.7	.....
Oil City	Venango	James A. Weeks	1	76	26, 28	23	46.8	.....
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick.	18	76	26, 27	34	55.3	2.66
MARYLAND.								
Sykesville	Carroll	Miss Harriett M. Baer.	18	73	29	24	51.5	5.00
St. Inigoes	St. Mary's	Rev. J. Stephenson	18	76	27, 28	40	60.0	2.56
Chestertown	Kent	Prof. J. R. Dutton	18	76	27, 28, 29	35	55.2	2.08
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Inst'n..	21	72	28, 29	34	54.1	5.02
KENTUCKY.								
Louisville	Jefferson	(Louisville Journal)	16	75	25	27	51.0	5.89
OHIO.								
Austintown	Ashtabula	J. G. Dole and C. L. L. Griffing	17	76	29	25	46.4	5.27
New Lisbon	Columbiana	J. F. Benner	1	78	12	26	47.7	2.98
Westerville	Franklin	Pf. H. A. Thompson	15	73	29	24	46.4	3.03
Urbana	Champaign	Prof. M. G. Williams....	17	80	24, 28	27	47.4	2.63
Welshfield	Geauga	B. F. Abell, A.M.	1	76	28	27	46.5	4.57
Portsmouth	Sciota	L. Engelbrecht	15, 17	73	25, 28	32	52.4	2.93
Toledo	Lucas	J. B. Trembly, M.D.	17	76	26	31	44.9	3.13
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	17	74	28, 29	34	50.8	2.53
Kingston	Ross	Prof. Jno. Haywood	17	76	28	26	45.2	1.58
Kelley's Island	Erie	Geo. O. Huntington	17	70	24, 28	39	50.1	2.84
Hillsborough	Highland	J. McD. Mathews	15, 17	71	24, 28	28	48.7	2.87
Bowling Green	Wood	W. R. Peck, M.D.	16	73	22, 28	30	48.5	3.10
Cincinnati	Hamilton	G. W. Harper	17	75	25	31	49.0	3.85
MICHIGAN.								
Monroe	Monroe	Florence E. Whelpley	17	74	26	30	46.9	3.11
Lansing	Ingham	Prof. R. C. Kedzie	16	72	26	17	45.2	1.04
Ypsilanti	Washtenaw	C. S. Woodard	17	72	26	28	44.7	2.87

Temperature and rain of October, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
INDIANA.								
New Castle	Henry	T. B. Redding	17	78	24	29	47.0	2.75
Spiceland	do	William Dawson	16	77	24	28	46.0	3.00
Muncie	Delaware	E. J. Rice	16	78	24, 28	27	43.7	3.81
South Bend	St. Joseph	Reuben Burroughs	16	75	24, 28	30	45.0	2.12
Rockville	Park	Miss M. A. Anderson	16	75	24	27	47.6	5.00
New Albany	Floyd	Dr. E. S. Crozier	16	78	24, 28	32	50.7	5.97
New Harmony	Posey	Jno. Chappellsmith	16	73	25, 31	28	48.3	3.23
ILLINOIS.								
Peoria	Peoria	Frederick Brendel	16	74	31	21	46.6	3.92
Winnebago Depot	Winnebago	J. W. Tolman	16	71	31	14	42.3	3.49
Augusta	Hancock	S. B. Mead	16	68	31	16	43.2	3.08
Galesburg	Knox	Prof. W. Livingston	16	68	24	24	43.7	4.74
Ottawa	La Salle	Emily H. Merwin	16	75	31	24	43.7	4.23
Manchester	Scott	Dr. John Grant and Ellen Grant	16	73	24	19	46.5	3.93
Du Quoin	Perry	Chas. Ziegler	16	74	24, 31	18	46.3	3.60
Waverley	Morgan	Timothy Dudley	15, 16	74	31	13	44.5	3.30
WISCONSIN.								
Milwaukee	Milwaukee	I. A. Lapham, LL.D.			25	28		2.97
Beloit	Rock	Henry D. Porter	16	69	31	18	45.0	2.04
Madison	Dane	Prof. J. W. Sterling	16	65	24, 25, 31	29	41.0	3.25
MISSOURI.								
St. Charles	St. Charles	J. H. Alexander			24	11		
Canton	Lewis	George P. Ray	15	70	31	15	43.6	7.56
Harrisonville	Cass	John Christian	2, 8, 16	78	31	26	51.6	1.88
IOWA.								
Lyons	Clinton	P. J. Farnsworth, M.D.	2, 9, 16	70	24	26	45.0	6.25
Independence	Buchanan	A. C. Wheaton	16	72	31	4	42.3	3.60
Muscatine	Muscatine	Suel Foster	15	70	31	14	41.7	4.20
Pleasant Plain	Jefferson	T. McConnel	14, 15	66	31	15	42.4	3.50
Algona	Kossuth	Dr. F. and Miss L. McCoy	15	72	31	14	40.4	0.79
Fort Madison	Lee	Daniel McCready	16	79	31	17	44.1	3.52
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	14	66	31	17	39.2	1.37
NEBRASKA.								
Fontenelle	Washington	John Evans	14, 15, 16	70	23	4	36.6	0.50
Bellevue	Sarpy	Rev. Wm. Hamilton	6, 11	70	31	14	42.5	1.00
KANSAS.								
Lawrence	Douglas	Arthur N. Fuller	16	81	23	13	47.0	1.10
Fort Riley	Davis	Elford E. Lee	16	85	30	18	51.7	0.67
Manhattan	Riley	H. L. Dennison	15	79	23	11	48.5	2.40

Table showing the average temperature and fall of rain (in inches and tenths) for the month of October, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1863.	
		Mean. ther.	Mean. rain.	Mean. ther.	Mean. rain.	Mean. ther.	Mean. rain.	Mean. ther.	Mean. rain.	Mean. ther.	Mean. rain.	Mean. ther.	Mean. rain.	Mean. ther.	Mean. rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	6	48.4	7.0	48.0	4.9	47.0	6.8	47.0	4.7	42.4	1.9	46.6	5.1	48.2	4.74
New Hampshire	4	50.2	9.2	47.4	2.8	47.1	6.6	45.3	6.3	41.0	1.9	46.2	5.3	46.2	3.74
Vermont	4	46.7	6.0	46.0	2.1	45.6	5.2	47.6	4.1	41.2	1.7	45.4	3.8	49.5	3.86
Massachusetts	12	47.4	9.3	50.6	2.4	49.6	4.1	52.2	3.1	46.4	2.2	49.2	4.2	52.3	3.13
Rhode Island	1	.....	.....	.....	.....	50.5	2.9	54.2	2.8	48.0	2.6	50.9	2.8	51.4	2.97
Connecticut	5	52.3	10.0	50.9	1.8	51.3	5.0	53.3	3.0	46.8	1.4	50.9	4.1	50.7	4.25
New York	18	49.2	5.0	49.1	1.8	48.4	4.9	52.8	3.1	46.1	1.6	49.1	3.3	49.0	3.42
New Jersey	3	51.8	4.6	52.8	1.4	53.2	3.5	55.2	1.6	47.5	2.7	52.5	2.8	54.1	4.52
Pennsylvania	20	50.6	3.6	51.3	1.7	52.1	3.0	55.9	2.3	48.7	1.8	51.7	2.5	50.7	4.96
Maryland	5	52.0	3.8	53.8	3.1	54.2	2.4	56.8	3.0	50.4	2.4	53.4	2.9	55.6	3.21
District of Columbia	1	53.9	3.5	54.8	1.8	54.6	1.9	58.4	2.5	51.7	2.5	54.7	2.5	54.1	5.02
Kentucky	4	53.2	1.2	56.6	1.8	53.5	3.0	59.0	3.5	52.9	1.6	55.1	2.2	51.0	5.89
Ohio	20	50.4	2.8	53.1	1.7	49.7	4.5	55.5	3.5	46.3	2.2	51.0	2.9	48.0	3.18
Michigan	8	46.4	3.5	48.5	2.6	46.2	2.1	51.1	3.1	45.5	2.8	47.5	2.8	45.6	2.34
Indiana	5	50.9	1.3	55.4	1.5	51.4	2.6	55.9	3.6	51.3	2.6	53.0	2.3	46.9	3.70
Illinois	12	51.2	2.8	55.7	3.0	50.5	2.2	53.4	3.6	48.9	1.7	51.9	1.6	44.6	3.79
Missouri	2	53.9	3.9	60.0	2.2	71.1	1.9	58.6	7.7	54.5	1.8	59.6	3.5	47.6	3.87
Wisconsin	10	45.9	2.4	49.3	2.5	46.7	3.1	48.9	3.2	44.7	2.0	47.1	2.6	43.0	2.75
Iowa	8	47.7	3.1	53.2	6.6	49.2	2.2	51.2	4.6	48.4	0.8	50.0	3.4	42.7	3.66
Minnesota	6	.....	.....	49.6	2.7	46.9	0.8	44.1	1.6	41.7	1.3	45.6	1.6	39.2	1.37
Nebraska Territory	3	.....	.....	.....	.....	48.9	3.9	51.9	6.0	51.6	1.3	54.1	3.7	39.6	0.75
Kansas	4	.....	.....	.....	.....	54.3	.....	56.9	6.6	54.3	0.5	53.2	3.6	49.1	1.39
California	2	.....	.....	58.2	0.2	61.5	0.4	60.5	2.6	65.4	0.2	61.4	0.9	.....	.....

In the middle of October a marked rise of temperature, followed by a depression, occurred similar to that mentioned in the previous report for the middle of September. The rise, as usual, was accompanied with a wind from the southern quarter of the horizon, which prevailed over nearly the whole extent of country from the western prairies to the seaboard. The depression in temperature was coincident with a wind from a westerly direction. The occurrence of the change was nearly simultaneous at all the places of observation; at least the difference in time was not as clearly marked as in some other instances of change of temperature in which a progression from west to east was clearly manifest.

In addition to the information given in the last report relative to the change in temperature about the middle of September, we have received a register of the weather from Fort Laramie, near the foot of the Rocky mountains, from which it appears that the same oscillations of the temperature occurred at that distant post; the time, however, as in many other cases, being a little in advance of that at stations in the eastern part of the country.

THE DRY SEASON.

Mr. Dille, one of our meteorological observers, residing at Newark, Ohio, informs us that "the present summer (1863) has been an unusual one. The rain usually comes with the southwest wind, but this season the only winds which

have been accompanied with rain are the north-east, the east, and the southeast. We have, besides this, had very little rain, not more than one-third as much as commonly falls during the growing season.

"Since the year 1854 we have had four dry seasons, including the present, the effect of which has been very deleterious to the forest trees; oaks especially have suffered much. A piece of sound oak timber of recent growth can now scarcely be found at one of our saw-mills. The growing trees die at the top, and the decay gradually extends downwards."

Colonel W. O. Collins, in command of the United States forces in Nebraska and Idaho, informs us that on his march from Leavenworth to Fort Laramie, in September, "the greatest trouble was lack of water, especially upon the main Platte, being, as it was, entirely dry from near the junction of the north and south forks, for perhaps one hundred and fifty miles. With four hundred and fifty men, and nearly seven hundred horses and mules, it was a serious matter, as we had no other means of getting water but digging holes in the bed of the river, and inserting boxes and barrels to keep out the quicksand. The water was generally found very near the surface, and was abundant and good. This entire drying up of the Platte is said by some never to have occurred before, though some mountaineers claim that it was equally dry about twenty years since. It is a peculiarity of all mountain streams in this section that they run strongly near their sources, and diminish across the plain. The causes are evaporation, sinking in the sand, and receiving no help from rains or tributaries."

During October the mean height of the barometer at Providence, R. I., was nearly *two-tenths* of an inch higher than the average of sixteen Octobers; maximum, 30.650 on the 29th; minimum, 29.864 on the 3d; range, 0.786.

The mean temperature of the month was $51^{\circ}.4$, or eight-tenths of a degree above the average of thirty-two Octobers; maximum, 72° on the 1st and 15th; minimum, 29° on the 27th and 29th; range, 43° . The warmest October in thirty-two years was that of 1838—mean, $54^{\circ}.5$; the coldest that of 1836—mean, $48^{\circ}.4$.

Rain fell on eight days, viz., 3d, 4th, 7th, 8th, 16th, 17th, 19th, and 24th; total, 2.97 inches, or 0.37 of an inch below the average for thirty-two years.

The average fall of rain from the 1st of January to the 1st of November, for a period of thirty-two years, is 34.46 inches; this year the quantity is 41.05 inches, which is 6.59 inches above the average for this period.

The prevailing winds came from some point between the north and east seven days; between the east and south eleven; between the south and west nine; between the west and north four.

The relative humidity was 80.9, (the complete saturation of the atmosphere being represented by 100,) which is exactly the same as last October.

On the 26th there was a *black frost*, the first of the season to injure delicate plants on College Hill. In shallow vessels ice was formed the thickness of window glass.

At Newark, New Jersey, the month was colder than usual, only three Octobers of the last twenty years having a lower mean temperature. The amount of rain was about equal to the average for a series of years.

The observer at Lyons, Iowa, says it has been a cold, stormy, wet October, with few pleasant days. There has been a frost on the ground nearly every morning of the month, with some hard freezes.

SNOW.

On Sunday night, October 18, there was a smart shower of hail in the valley, and at daylight on Monday the mountains east and west wore a good sprinkling of snow, the first of the season.—*Deseret News*, October 21, 1863.

On the 22d instant we had a slight fall of snow, and for the last week or two the weather has rendered overcoats and cloaks decidedly comfortable.—*Rio Abajo Weekly Press, Albuquerque, New Mexico, October 27.*

At Fort Laramie there was a heavy snow squall on the 17th, and a slight one at 9 a. m. of the 21st.

22d.—At Fort Riley and Manhattan, Kansas, snow fell from 6 a. m. till about noon. At Saint Paul, Minnesota, it snowed all day. In Iowa, it began at Independence at 10 a. m.; at Pleasant Plain at 11 a. m.; at Muscatine at 12 m.; at Lyons at 12½; at Harrisonville, Missouri, at 2¾ p. m. The snow continued through Illinois and Indiana in the day and night of the 22d and morning of the 23d, falling from half an inch to three inches in depth. Further east it principally changed to rain, and the storm is noticed on the registers from all the States (though not at every station) to the New England coast, where the rain was on the 24th. At North Littleton, N. H., a few flakes of snow fell on the 25th.

Another snow fell in the western States near the end of the month. The earliest notice of it on the registers is at Fort Laramie, where it began at 9 a. m. on the 28th. It began at Fort Riley, Kansas, at 4 p. m. on the same day. The greatest depth recorded is six inches at Independence, Iowa. This storm followed the same course as the preceding, changing to rain east of Indiana, and prevailing in Maine on the last day of the month.

THUNDER STORMS.

2d.—There was a thundergust at Sykesville, Maryland, at 4 p. m., and at Harrisburg, Penn., at 7 p. m.

3d.—There was thunder in the afternoon at Urbana and Hillsborough, Ohio, and at Ypsilanti, Michigan, and at the last place sharp zigzag lightning.

8th.—Thunder and lightning at Harrisonville, Missouri.

10th.—Lawrence, Kansas, lightning in the east at 8 p. m. Canton, Missouri, diffuse lightning in the southwest from 7½ to 9 p. m.

11th.—Harrisonville, Missouri, thunder and lightning. Manchester, Illinois, severe thunder storm during the greater part of the night, and after midnight thunder shower at Augusta, Illinois.

15th.—Diffuse lightning at Harrisonville, Missouri.

16th.—Thunder and lightning at Harrisonville, Missouri, and at Middletown, Connecticut.

17th.—Thunder at Lyons, Iowa; thunder and lightning from 6 to 7 a. m. at New Bedford, Mass.; four peals of thunder at 10 a. m. at Theresa, N. Y.

18th.—A heavy thunder shower at Littleton, N. H., between 7 and 8 in the evening.

19th.—Thunder at Harrisburg, Penn. At Brandon, Vermont, heavy thunder at a distance between 5½ and 6 p. m. A thunder shower passed over Rutland, in the same State, between 4 and 6 p. m. At Claremont, N. H., the most severe thunder storm of the season occurred from 6 to 10 p. m. this day.

PRAIRIE FIRES.

At Fort Riley, Kansas, prairie fires were seen in the south and east on the 10th and 11th; in the west and northeast on the 15th; and in the east on the 26th.

METEORS.

Special arrangements have been made by scientific men in this country for

the observation of meteors or shooting stars during the month of November, when unusual numbers are generally expected. The Connecticut Academy of Sciences has published a map of the stars for the assistance of observers in noting the phenomena, and full directions have been sent to a large number of persons. Mr. Robert Brown, jr., of Cincinnati, has also issued a circular on the subject, and organized a corps of observers in the west for this period. It is hoped that all who observe meteors during the month will send in to this Department a minute account of them.

MONTHLY REPORT
OF
THE DEPARTMENT OF AGRICULTURE,
FOR NOVEMBER, 1863.

DEPARTMENT OF AGRICULTURE,

Washington, December, 1863.

No monthly report will be made for December, and from a monthly it will be changed to one issued every two months. This change is rendered necessary because these reports are now embracing too many and too important subjects to be properly prepared in so short time. Nor does a monthly allow our regular correspondents to obtain and communicate the information asked of them.

The reports of next year will be much larger, each containing an article on some subject necessary to be discussed, and fuller comments on the matters embodied in the tables. The imports and exports, and all questions affecting the markets of our agricultural products at home and abroad; will be noticed. The meteorology will embrace the customary reports of each month.

The Commissioner asks the special attention of his regular correspondents to his article on the monthly reports, in which their proposed future connexion with this Department in the discharge of various duties is noticed, should Congress sanction the views it presents. He avails himself of this opportunity to again return his acknowledgments for their fidelity and promptness.

Hereafter the circulars will be issued in the beginning of the month, and not returned until near the close of it, thus giving the desired time to obtain information.

ISAAC NEWTON, *Commissioner.*

THE MONTHLY REPORTS OF THIS DEPARTMENT.

THE PURPOSE AND CHARACTER OF THESE REPORTS—THEIR INTENDED IMPROVEMENT AND ESSENTIAL TO THIS IS A MORE EXTENDED AND MORE SYSTEMATIC BASIS FOR ESTIMATES OF PRODUCTION—A CENSUS EVERY FIFTH YEAR; STATE CENSUSES CONSIDERED—GREATER CHEAPNESS AND IMPORTANCE OF THAT BY THE GENERAL GOVERNMENT—THE FUTURE NECESSITY OF A STATISTICAL BUREAU IN THE AGRICULTURAL DEPARTMENT—THE IMMEDIATE WANT OF POWER IN IT TO COLLECT STATISTICS PERTAINING TO MANUFACTURES AND COMMERCE, AND OF THOSE RELATIVE TO EUROPEAN CROPS.

When the monthly reports were commenced, it was expected that they would be discontinued with the October number, as that one concluded the notices of the crops of 1863, and be resumed in May of next year. But it is found necessary to continue them. The winter is the only time in which to collect and publish statistics of farm stock, and of prices, yields per acre of various crops, use of manures, and other matter essential to the prosperity of agriculture. It is the object of these reports to place before the public all statistics, and questions growing out of them, that connect themselves with the progress of the industrial pursuits; and these are so many and so diversified that every month of the year has statistics peculiar to it, and of so much importance that no month can be passed by without a report of these, not, perhaps, in a separate report for each month, but in one issued every two months, for experience indicates that a monthly report does not admit of time necessary for our correspondents to collect statistics, and for the Department to maturely consider them. It is certain that there will not be sufficient time when the Union shall be restored, nor is there now to receive returns from the Pacific States and from the Territories; the latter of which are rapidly assuming an importance to the progress of the whole country, for, as correctly remarked, they are to contribute in an incalculable degree to its material wealth. All these should be represented in the reports of the Department.

The monthly report was an experiment during the summer, but its purpose and influence were more clearly seen in the September and October numbers, and by these have its character been established. Whilst it is not the intention of the Commissioner of Agriculture to make public whatever of approbation his course may receive, yet in a new enterprise, not before attempted by any nation, it is not improper to publish, as instances of the sentiment expressed to him, the following extracts of letters from different parts of the country:

From Indiana, a correspondent says: "The occasional numbers of your monthly report, as the Commissioner of Agriculture, which have come under my notice, have inspired me with so much interest that I take the liberty to ask you to favor me with the back numbers of the same."

From Illinois, another correspondent thus writes: "I take this occasion to express the hope that your monthly reports may be continued, so as to become a permanent fact. The country, if I am not greatly mistaken, will demand something more than your annual reports, now that we have a Department, and as you have commenced a monthly report, we intend to compel you to keep it up through the year."

The Secretary of the Illinois State Agricultural Society writes as follows: "Two copies of your report for 1862 have come to hand. It is certainly of great value, and, together with your monthly reports, is excellent evidence of energy and intelligence now in the Department."

From New York, another correspondent says: "I have duly received your monthly reports, and must say they have, in all things, fully met my expectations, and the more they are extended the better."

The following is from a letter written by a correspondent of Massachusetts: "Your last monthly report (September) is one of remarkable excellence. You

have been steadily improving on those monthlies all summer, and you have now reached a point apparently but little short of perfection. Doubtless you will, in coming years, have more reporters, better trained, and covering a larger territory, and so your summaries will be more accurate and reliable; but already it is manifest that your method is most admirable. I confess that the suggestion of the 'Country Gentleman,' that you should have an additional column or columns giving the amount of the principal *grains in store*, (of the production of former years,) struck me as a valuable one, worthy of being adopted. I commend it to your consideration. I am amazed that you have had such success in the matter of statistics in so short a time. Those columns of dry figures are eloquent. They are going to exert a tremendous influence. Just see what they have done this season. When your last monthly came out corn was selling here at \$1 10; straightway it rose to \$1 30, and no one wants to sell at that. Those little bulletins are going to regulate the markets. They will guide the producer in selling his crops, and protect him from the speculator. This will be an incalculable benefit. Now, see how it is about wool. Wool-buyers get their wool as they can. The price is not fixed, because the data are not known. Before next spring's clip comes to market you will have need to learn how many sheep will be sheared, and the amount of the clip; also the clip of preceding years, and the domestic and foreign consumption. There is a general impression that more sheep will be sheared next spring than were sheared last spring. Who knows? I take it these statistical tables are to be for the protection of the producers. I consider the monthly reports of great worth, and carefully lay them by for future reference. Don't underrate the figures. The nine digits are to do the business."

With opinions like these is associated the fact that the most influential commercial papers refer to the tables of crops as authority governing commerce in them. Whilst all this is gratifying to the Commissioner of Agriculture, it imposes upon him a responsibility that weighs heavily, and prompts him to bring before the public matters essential to a full development of the plan, as yet imperfectly seen, in the published reports.

This plan is based on circulars issued to regular correspondents in every county, asking of them answers to interrogatories concerning the condition of the crops, their comparison in amount with the crops of the preceding year, and such other matters as an intelligent and careful person can answer with an accuracy sufficiently near for all practical purposes. These answers are given in a form that admits their compilation into tables, and may be extended into fuller tables of bushels, pounds, and tons, as occasion may require.

But necessary to these fuller tables is a *basis* on which to estimate the amount of the crops, and it is to the *extent* of this basis, and the *manner* in which it should be made, that public attention is now called in this article.

1. *The extent of the basis.*

Those who have examined the last two monthly reports will have seen how much reference is made to commercial matters. The writer just quoted concurs in the criticism that these reports should have stated the "*grains in store*" as an element of supply. This is true, but such statement would embody a *commercial* fact, and over commercial statistics this Department has no power authorizing their collection. For great practical purposes it is impossible to separate statistics of agriculture from those of manufacture and commerce. Now, the *basis* upon which to determine the amount of crops, and their value as affected by home and foreign demand, must be found in a census of *all* these statistics. They cannot be separated without impairing the value of each. Hence the powers of this Department should embrace all subjects of a statistical character pertaining to manufactures and commerce, as well as to agriculture. Those nations that have given most regard to the industrial pursuits have ministers for their advancement, and their official duty has extended to all alike. And

the propriety of this is clearly seen upon a moment's reflection. The relation between production, interchange, and consumption bind all together, for they embrace *supply and demand*, and it is these which give value to all commodities, and according to their value will be their production. It has been well said that the great interests of agriculture, manufactures, and commerce are *one and indivisible*; that they are intertwined and dependent upon each other. All national industry must be regarded as a unity, and hence Mr. Webster correctly declared that the cotton spinners of Lowell were growers of cotton, because they supplied clothing to those who worked in the cotton fields. And the laborer carrying the cotton cloth of the one to the other, and the cotton of the latter to the former, is, for like reason, a producer also of cotton. A Department having cognizance of the interests of the one, must necessarily have like power over those of the other.

Whilst it is certain, then, that this department must ultimately have this extent of power and duty, yet as a new Department should extend its operations gradually, all that is *now* needed from this indivisibility of agriculture, manufactures and commerce, is the general power to collect statistics by circulars of all these, as it now exercises over the statistics of agriculture.

But whilst this extent of power is all that is needed *now*, it does not constitute any part of the *basis* on which estimates of crops, &c., are made. This is found only in the census returns. The estimate of crops from year to year will always be by comparing them with those of the preceding year, and these are ascertained by the census. The first basis, therefore, is the census. Its *extent*, like the statistics obtained each month by circulars, should embrace the leading products of all our industrial pursuits. *How often should this basis be renewed, or, in other words, how often should the census be taken?*

2. The experience of the last summer and fall shows that a census should be taken every five years. This would be often enough. For the other four years estimates can be made through the information furnished by correspondents. But the general government orders but one census in a decade, and the inquiry is, whether any means may be relied on to obviate the necessity of another one?

If the several States could be induced to adopt a uniform mode of taking a census every ten years intermediate with that of the general government, the *basis* given by them would be sufficient. But few of them take any census at all, and those that do have reference more to their own industry than to the ascertainment of statistical facts, essential to the development of general matters, such as the internal trade of the whole country. To the accomplishment of such a purpose all the statistics appertaining to agriculture, manufactures, and commerce, must be taken by a uniform mode as to qualifications of the persons taking it, as to the directions for their government, as to penalties for failure of duty, and those imposed on persons withholding the information sought. It would be needless to hope for such united action in so large a number of States as compose the Union, especially when but few have ever as yet had a State census.

The practical question, therefore, must be this: Will the general government take a census every fifth year? Certainly not, if the delays and expenses are the same as of the census taken every tenth year.

Two things are necessary to avoid them. *First*, a system well devised to the special objects it aims to accomplish; and *second*, agents who are skilled in their duties, and bring to their discharge a proper appreciation of the object of the work in which they are engaged.

The utility of a census lies in the principles which its statistics embody. These principles should be well considered before the objects embraced in the census are selected, because they should have strict reference to unfolding these principles. Thus, for instance, if the development of the internal trade, with all its bearings on the industry of this country and the political relations to

each portion of it, is a purpose of the census, then all statistical facts essential to such development should be embraced in the census. The *objects* of statistical information, their *extent*, and *relations* to each other, should be systematized with reference to the purposes sought to be accomplished. But as our censuses have been taken, this process has been reversed. Certain facts are ascertained, and then they are looked into to discover what principles may be deduced from them. Some facts are wanting; others imperfectly developed, and thus important principles are obscurely seen. The utility of the census is thus impaired, and its completion delayed to gather additional facts.

Again; statistics relate to information expressed, not in words, but in figures. Few persons have the taste to ponder over their dry columns, studying out the great economical and political truths which lie hidden within them. Hence when persons are hastily selected to collect statistics, as has been the case with deputy marshals to take the census, but few either appreciate the purposes of such census, or have any skill to bring to the right discharge of their duties. Most regard is paid to the per diem allowance. So that the different columns are filled with figures, it is immaterial to them what ones of the nine digits they are, or what their combination may express. Their returns are deceptive. Let any one acquaint himself with the returns made to the Census bureau, and the steps necessary to be taken by it to correct the most glaring of the errors, and he will see in them both expense and the cause of that delay which makes so impatient over it those who look for the census reports. The necessity for such correction should be avoided, and a greater approximation to facts reached. This cannot be done except in the employment of more competent persons.

If these remarks are true, then in what Department can the power over the census statistics be better lodged than in that of Agriculture? With authority to collect the annual statistics of production, accustomed constantly to search out the relation of its parts and unfold their mutual dependence, what Department exercises powers which so well fit it to adopt such a system for the census as alluded to? Or what agents so well qualified for the duty of collecting census statistics as its regular correspondents? Accustomed every month to examine into questions similar to those embodied in the census, and to see their application to great purposes in the reports of the Department, they learn to appreciate statistics, and a skill in understanding them that enables each one to sift out that which is true from that which is false. These qualifications would secure a speedy and correct discharge of duty.

These advantages would enable this Department to take a census every fifth year, unattended with the expense and delay now experienced in the decade census. A census every fifth year by the general government would render unnecessary any census by the States, and as direct taxes are now levied by the former, a saving to the latter would more than compensate any additional expenditures created by such fifth year census.

But even should the additional cost be unattended with any such compensating advantages, the general good accomplished by it, in exhibiting the progress of the industrial pursuits; in providing a *basis* for correct estimates of the crops, and other production, in due time to guide commercial transactions, justify and demand such fifth year census. But add to these its necessity in unfolding the great internal trade of the country from year to year, and by such an exposition to show its vastness, its necessity to all parts of the country, and its needs! That trade is the representative of the industrial pursuits in all their production, exchanges, and consumption. It exhibits the harmonious and mutual dependence of every State, and it binds the prosperity of each State indissolubly to the prosperity of the other. Heretofore the government has aided but little in scattering abroad knowledge of the details and the extent of that trade. It permitted, by its inaction, statements of political traitors to take the place of the certain knowledge it should have promulgated. It allowed southern com-

mercial conventions to hold annual meetings, which poisoned the public mind it thus controlled, by making it believe that the Union existed at the cost of southern prosperity. It made no effort to set forth the facts teaching us that every section was dependent on the other, and in that dependence lay the great prosperity which had blessed the industry of every section. Thousands of dollars, if necessary to this purpose, would have been wisely spent in the collection of statistics which now would have saved millions of dollars, and lives of far greater value than all these millions. With the great events of the day pointing to these errors of the past, the nation should profit by their teachings. The statistics of every branch of industry must be collected if their mutual relations are to be comprehended. Omit important portions, as is now done, and the statistician gropes among partial and doubtful statements in vain conjecture of what is the extent and relations of the industry of the country. In a Union so extensive, with productions so diverse, with forms of government tending so strongly to that which is local against that which is national, the mutual relations of that industry must be made familiar to all.

In March the Senate of the United States directed the Secretary of the Treasury to collect statistics of the domestic commerce of the United States. In his recent annual report that officer says: "The materials for a proper statement of this internal commerce must be sought in reports of State commissioners of statistics, of boards of trade, of railroad and canal companies, and occasional or periodical publications relating to trade and business. This is a department of statistics comparatively new and difficult of exploration."

To fully set forth the "intertwined" trade of the several States, an extensive and connected system of statistics is necessary. Whilst the materials mentioned by the Secretary are important to exhibit this trade in its aggregation, yet they are too imperfect in their disconnexion to furnish sufficient materials for the unfolding of our internal commerce. But they are all that can now be had. They take no notice of much that is material. Instances are seen in the trade between the western and cotton-growing States. Ohio, Indiana, Illinois, and Kentucky supply the latter with horses and mules. So in the cattle trade between the west and the east. Illinois is credited with the large supplies of cattle it furnishes the eastern States and the packing houses, yet Indiana and Ohio raise large numbers of these cattle. They are driven to the immense cornfields of Illinois to be fattened. Whilst the slaughtering houses furnish the statistics of the number of hogs, and their weight, that are packed in them, they can give no account of the bacon and lard sold by farmers, which not only supply the consumption of localities where sold, but in many years form no inconsiderable portion to the general commerce of the country. Statistics should be gathered from all occupations representing the industrial pursuits, and a correspondence should be had with all, such as is held by this Department with the agriculturists of the country.

Again: by making a statistical bureau a part of the Department of Agriculture, greater economy would be effected. The acts of Congress require the collection of agricultural statistics by this Department, and such collection implies the use of them in all investigations relative to the progress of agriculture, and their publication. For this purpose the monthly and annual reports are published. As has been seen, where the power to collect is lodged, there must exist the power of investigation also, for the former must have direct reference to the principles unfolded by the latter.

The Agricultural Department, then, must collect these statistics, must consider and publish them, and necessary to such consideration is a statistical library and papers. It must have a statistical division, as it now has, and these must be to an extent not much less than should be found in a bureau of statistics. Why have two libraries, two bureaus in effect, two sets of agencies in collecting sta-

tistics? These considerations cannot be unconsidered when Congress shall determine to create a bureau of statistics.

Besides the immediate power to collect statistics of manufactures and commerce by circulars, and the ulterior one of having a bureau of statistics, with authority to take a census every fifth year, this Department should have some means to reward its regular correspondents. It sends them now its monthly and annual reports, but these are insufficient. To aid them in their duties, each one of them should have an unabridged report of the census, for these only exhibit the productions of each county. Hence two thousand copies of these should be placed at the disposal of this Department for these correspondents. It would be proper, too, when reports and documents are printed in large numbers for general distribution, to have the same number of copies of each distributed to them through this Department. As the correspondents are in every county, and selected with reference to their intelligence, these documents could not be placed in more useful hands. Their services, unpaid in any other manner, merit this approval on the part of Congress.

It is true that the primary motive with them is to advance their occupation by aiding a Department which has been established to promote such advancement. To this effect is the entire sentiment as expressed by them. "We are well pleased," says one from Wisconsin, "with the valuable statistics in your monthly reports. It seems as though we could not do without them now. *We consider ourselves a thousand times paid for our own trouble.*" Whilst the generous sentiment contained in the last sentence is held by all our correspondents, it is still due to them that their valuable co-operation should be acknowledged in the manner suggested. Their aid must become essential in many things. It is very certain that meteorological observations must have a far greater extent, if the peculiarities of our climates are to be understood. The isothermal lines do not indicate these, because of their generality; nor do the reports of the fall of rain exhibit the true quantities, because these reports embrace too few observations. The remarkable peculiarities of the Mississippi valley climate, the great agricultural region of the country, is almost unknown in our books. Its droughts and rains, its frosts, snows, and cold storms, have never been studied in detail, because sufficient observations have not been made to present these details. Hence our correspondents should be furnished with a rain-gauge and thermometer, and gradually trained to take as full observations as now made by the Smithsonian observers. Men so useful should be encouraged in their voluntary services.

As it is a purpose of the monthly reports to give timely information of every matter bearing on the commercial value of the products of labor, the foreign crops need to be known, especially of England, and of those nations that compete with the United States in its markets. The want of European agricultural statistics has ever stood in the way, both there and here, of an intelligent comprehension of the state of supply there, and of the probable demand upon our own agricultural products. The reports of the present year of English crops show this. During harvest, and until recently, these crops were stated to be unusually large; but now these reports are much modified. "The early estimates of the cereal crop," says the New York Shipping and Commercial List, "it now appears, were too liberal; besides which the failure of the potato crop in Ireland will necessitate a greater demand for breadstuffs."

This Department has had some correspondence with a few of our consuls in Europe, and it has no doubt that, without conflicting with their special duties as consuls, much important agricultural information by circulars can be obtained through them. Their services are needed to place this Department in communication with European and other agricultural societies, that mutual information may be given by interchange of reports, and by other methods. To establish a systematic action among these, yet diversified as the peculiar agricultural and

commercial character of each nation may require, as well as to obtain more complete knowledge of the agricultural capabilities of each nation, an agent of this Department should visit the principal countries of Europe.

The Commissioner of Agriculture, in this connexion, cannot but refer to the courtesy of the Secretary of State, who has authorized him to call upon these consuls for such agricultural information of the countries in which they reside as may be desired by this Department.

Essential to a correspondence necessary to the collection of statistics for the reports of this Department is a restoration of the franking privilege given to it by the act creating the Department of Agriculture. It declared that the Commissioner of Agriculture may send and receive through the mails, free of charge, all communications and other matter pertaining to the business of his Department, not exceeding in weight thirty-two ounces.

To obtain returns from correspondents furnishing statistical information, he has prepaid the postage, and, in consequence, had to limit the correspondence to those whom he knew would certainly answer, when the want of information demanded an extension of the correspondence to counties in which there was no correspondent. Such as are competent cannot be procured often until after several trials, and the prepaid postage would be lost. If the Department shall be authorized to collect statistics of manufactures and commerce by circulars, the present restrictions will necessarily result in a loss to the government until the correspondence will be fully established, because persons to whom prepaid envelopes are sent do not answer, for the reason that they do not desire to become correspondents, and the war takes many of them from home. Very frequently individuals who are not regular correspondents, wishing to aid the Department, would send statistical information, but the restriction on the franking privilege of the Department prevents them. Individuals having personal objects to subserve ought to prepay their postage, but such have no communications to make to the Commissioner.

The *number of copies* of the monthly report, or of one published every two months, that should be ordered by Congress to be printed, is a subject in which *all* are interested, for not farmers only, but those engaged in commercial, and even those in professional pursuits desire them. *All*, too, want the annual report, because agricultural and horticultural pursuits have an interest for all.

When the plan on which the monthly reports are based will be fully developed, the demand will be greatly increased. The Department commenced with ten thousand copies, but soon had to increase them to fifteen thousand. If the wishes of all asking for them had been complied with, that number would have had to be doubled. Fifty thousand copies of a report published every two months would scarcely supply the demand.

The English government sells its statistical compilations at *cost*, and, if Congress would direct that individuals might order copies on like terms, the Commissioner believes that, through his regular correspondents in each county, a large number of copies might, on this plan, be furnished to those who cannot otherwise obtain them. As this correspondence is monthly, and the annual report not published until in the summer, ample time to forward subscriptions would be given before the copies for free distribution would be printed. No objections can be made to a trial, at least, of this plan for increasing the circulation of the reports of this Department.

ISAAC NEWTON, *Commissioner*.

Table of the amount, condition, &c., of the crops for the month of November, 1863.

[illegible]

Table of the amount, condition, &c., of the crops for the month of November, 1863.

STATES.	LIME.—PLASTER.			PLOUGHING.		WEATHER.—WEEKS.				
	Increase or decrease of use of lime and plaster in the county.	Cost of lime per bushel.	Cost of plaster per ton.	Average depth of ploughing in the county.	Increase or decrease of ploughing more than six inches in depth.	Favorable.	Dry.	Very dry.	Wet.	Very wet.
		<i>Cents.</i>		<i>Inches.</i>						
Maine	11	45	\$8 85	6½	10½	26	6	....	23	5
New Hampshire	10	48	8 00	6½	10¾	15	4	1	7	1
Vermont	10½	19	9 25	6¾	10½	33	5	....	4	2
Massachusetts	10	51	9 57	6¾	10¾	19	2	....	14	9
Rhode Island	10	20	3 50	5	10	2	5	....	4	1
Connecticut	12¾	54	10 25	6	11	13	1	....	9	1
New York	10½	23	4 87	6½	11	75	31	....	57	9
New Jersey	10½	13¾	8 25	6	11	19	11	2	10	2
Pennsylvania	10	17	10 43	6	11½	77	23	1	47	2
Maryland	9	17	9 33	6½	11½	31	6	....	6	1
Delaware .....	.....	20	7 50	4	11	....	....	....	4	....
Kentucky .....	.....	17	.....	5½	11	16	6	....	8	2
Ohio	10½	17	13 12	6½	11½	119	35	2	48	4
Michigan	12	31	6 80	6½	11½	38	18	....	20	2
Indiana	12¾	22	9 00	5¾	12	71	29	....	39	8
Illinois	11	25	7 50	5½	11½	110	75	8	35	....
Missouri	9½	41	.....	5	11¾	14	5	5	4	....
Wisconsin	11	25	9 66	5¾	12	32	18	....	33	1
Iowa .....	.....	26	13 00	5½	12	50	66	3	48	1
Minnesota .....	.....	33	.....	6	13	2	24	5	1	....
Kansas	12½	27	.....	5½	12	4	23	4	1	....
West Virginia	7	.....	.....	.....	.....	2	....	....	6	....
Nebraska Territory .....	.....	31	.....	6	11½	....	5	....	7	....

Favorable, 708; dry, 398; very dry, 31; wet, 435; very wet, 51.

THE TABLES SHOWING THE SYSTEM OF OUR AGRICULTURE AS TO USE OF MANURES AND DEPTH OF PLOUGHING.

Having, in the last two monthly reports, exhibited the magnitude of the crops produced in the loyal States, and not wishing to make any inquiries relative to farm stock before the circular for January was issued, the most useful subject of examination at this time was the mode by which these great crops were produced. Was American agriculture based on an exhaustion of the rich soils nature had given it, or was it self-sustaining by the use of manures and deep tillage?

Without dwelling on each of the elements of fertility in soils, we assume that what is most needed in our agriculture is vegetable matter, which includes all minerals that have entered into the plants forming it. The table, compiled from the circular for November, shows the comparative number of bushels of clover and timothy seed raised last year; the average number of acres of clover; the average proportion of full crops of clover turned under; the use of lime and plaster, and the prices of the latter; the increase of barn-yard manures; that of grain and phosphates; and the depth of ploughing. We notice each in the order stated.

1. *The clover seed crop of 1863.*—In 1850 the clover seed crop was 432,742 bushels in the loyal States, and in 1860, 881,918 bushels, being an increase of 103 per cent. This is a general average increase of 10 per cent. per annum during the decade.

In the following table will be found our estimates of the crop of 1862 and of 1863 of the principal clover seed producing States. The omitted States raise so little of it that their omission is of no material consequence. The first column is taken from the census returns of 1860; the second is estimated; the third is the tenths decrease from the crop of 1862, and the fourth shows what the crop of 1863 is.

Table of the clover seed crops in bushels.

	1859.	1862.	Tenths decrease.	1863.
Illinois.....	16,687	26,703	1 $\frac{3}{4}$	22,350
Indiana.....	45,321	58,817	1 $\frac{1}{4}$	51,554
Maine.....	48,851	65,134	1 $\frac{1}{2}$	55,365
Maryland.....	39,811	49,764	1 $\frac{1}{2}$	42,300
Michigan.....	49,480	64,324	4	38,594
New Jersey.....	39,208	43,128	1	38,816
New York.....	106,933	113,288	$\frac{1}{2}$	107,624
Ohio.....	216,545	270,681	2 $\frac{1}{4}$	209,778
Pennsylvania.....	274,363	342,954	3	240,067
	837,199	1,034,790	-----	806,448

This shows a decrease of 228,342 bushels, or 28 per cent. in the year 1863.

2. *The clover crops turned under for manure.*—The manure most used in our general agriculture is clover and sods. Hence the amount of clover and grass seeds grown gives an indication of their use in producing this manure, except so far as they are exported. In 1850 this amount for the loyal States was 432,742 bushels of clover seed, and 280,037 bushels of grass seed. In 1860 the clover seed was 881,918 bushels, and the grass seed 791,698 bushels, showing an increase of the first of 103 per cent., and of the last 182 per cent.

But in 1861 the exportation of clover seed was \$1,063,141; in 1862 only \$299,255. If none had been exported, then the 881,918 bushels would have sown 7,055,344 acres each year, at eight acres to the bushel of clover seed. If allowed to remain two years before being ploughed up, there would be in clover, in the loyal States, 14,110,688 acres. If the other grasses sowed six acres to the bushel, the seed of these would sow 4,750,188 acres. If these remained in meadow and pastures five years before being turned over, in that time the number of acres sown would be 23,750,940 acres, making together 37,861,628. The following table exhibits the number of acres of improved lands in the loyal States in 1850 and 1860. In the latter year they were 104,816,513 acres. Deduct from these the acres in grass, and those under plough cultivation would be 66,954,885 acres.

This would present a healthy condition of agricultural production, if the clover fields, when ploughed up, had full crops on them; if the aftermath of the meadows had not been pastured, and the pasture grounds not eaten down, during the year prior to their being ploughed up. But too seldom are these crops left on the field. Hence our soils are not sufficiently restored from the exhaustion caused by cereal, tobacco and other crops.

Table of improved lands in loyal States.

	1850.	1860.
	<i>Acres.</i>	<i>Acres.</i>
Maine.....	2,039,596	2,677,216
New Hampshire.....	2,251,488	2,367,039
Vermont.....	2,601,409	2,758,443
Massachusetts.....	2,133,436	2,155,512
Rhode Island.....	356,847	329,884
Connecticut.....	1,768,178	1,830,808
New York.....	12,408,964	14,376,397
New Jersey.....	1,767,991	1,944,445
Pennsylvania.....	8,623,619	10,463,306
Maryland.....	2,797,905	3,002,269
Delaware.....	580,862	637,065
Kentucky.....	5,968,270	7,644,217
Ohio.....	9,851,493	12,665,587
Michigan.....	1,929,110	3,419,861
Indiana.....	5,046,543	8,161,717
Illinois.....	5,039,545	13,251,473
Missouri.....	2,938,425	6,246,871
Wisconsin.....	1,045,499	3,746,036
Iowa.....	824,682	3,780,253
Minnesota.....	5,035	554,397
Kansas.....		372,835
California.....	32,454	2,430,882
	70,011,351	104,816,513
		70,011,351
Increase in loyal States		34,805,162

Between 1850 and 1860, the increase in improved lands, it will be seen, is 34,805,162. But the increase in clover and grass seeds, according to the rate per acre sown, and the time the fields are left unbroken, as above stated, would sow only 22,536,646 acres—about one-third less. Hence, although the increase in the production of these seeds has been gratifying, yet it should have been one-third greater, to have kept pace with the increase in improved lands. Whatever number of acres of these lands have been kept in permanent pastures has been more than counterbalanced by the exportation of the seeds, and hence

these views against our system of agricultural production are not weakened by the amount kept in such pastures.

But our correspondence gives hopeful encouragement that there is a better cultivation coming. Farmers appear to be awakened, even in the rich lands of the west, to the necessity of improvements, for these lands are seen to be *not inexhaustible*. To keep up the vegetable matter of the soil is a duty that begins to weigh on the minds of reflecting agriculturists, and that farming which secures large crops at the expense of the soil is being condemned as a present profit based on the impoverishment of the generation that is to follow. A correspondent from Michigan, quoting our remark, that no greater misfortune could befall our country than the impoverishment of its soil, says: "I fully concur in that sentiment. The farmers in this county have felt the full force of its truth in years that are passed. Ten years ago, by continual cropping, our land run down to such a condition that ten bushels of wheat per acre were considered a large crop, but within the last ten years we have resorted first to rotation, then clovering and plastering, and the use of every load of manure we can make. At this time, in this section of our State, the average is twenty-five bushels of wheat per acre."

2. *The use of lime and plaster.*—The column in our table relating to the increase of the use of these fertilizers is favorable, when the scarcity and high price of labor are considered. In Connecticut, Michigan, and Indiana, the increase is from 20 to 27 per cent., and in Maine, Illinois, and Wisconsin, 10 per cent. In nearly all the other States, it is not below a general average.

The clover crop is the basis of general manuring: in small places, for special crops, where high prices for the product may be obtained, guano and the phosphates may be employed; but for the farm generally, the chief reliance must be on clover crops and stable manure.

Whilst the number of acres in clover is about an average, the proportion of full crops turned under is below it. This was caused by the scarcity of fodder and hay, requiring the farmer to mow the second crop, instead of ploughing it in for wheat. But this is a temporary evil, and, therefore, it need not be dwelt upon. The important question is, how can lime and plaster be best used to increase the clover crop?

We have placed these two manures together, and consider them in connexion with clover, because the three should not be separated. Common lime rock is composed of 43.7 per cent. of carbonic acid, and 56.3 per cent. of lime. By burning, the first is driven into the air. Plaster has, sulphuric acid 46, lime 33, water 21 per cent., and red clover 27.80 per cent. of lime and 4.47 per cent. of sulphuric acid. Besides this food directly supplied to clover, and by it as directly given to wheat, the lime hastens the destruction of vegetable matter, thus preparing it for the latter crop, and the plaster attracts moisture. Hence in soils having much vegetable matter and little lime, the effects of plaster are highly beneficial in this way.

As an instance of the proper mode of applying plaster, and of its beneficial effects on soils abounding in vegetable matter, we take the following from the article on The Wheat Plant, published in the Annual Report for 1862 of this Department.

General Orr, of Laporte county, Indiana, one of the most intelligent and successful farmers of the country, thus states his experiment:

"The field contained thirty-seven acres; was of a light, loamy soil of medium gravity; had been covered with scattered trees of burr oak and hickory, with frequent patches of hazel; was brought into cultivation ten years ago; had produced three crops of wheat, two of corn, one of oats, and in March, 1853, was sowed to clover among wheat, all without manure. It was pastured in the fall of 1853, and up to the first of June, 1854, when everything was turned off, and on the 10th and 11th of June we sowed six barrels of plaster on twenty-eight

acres, leaving nine acres without. Two barrels were of the Oswego and four of the Grand River plaster. The clover grew well all over the field, but best on the plastered part, and by the 20th of July that on which the Grand River plaster was used was all lodged; that on which the Oswego was used, but partially so; while the unplastered part stood up and was much lighter than either of the others. The whole was ploughed under six inches deep, between the 20th and last of July, and the ground well harrowed over the first week in September. The wheat was all sowed broadcast, two bushels to the acre, and well harrowed in, between the 10th and 11th of the same month. The field had been carefully divided, before sowing, into three parts, across the plastered and unplastered parts; two contained twelve acres each, and one thirteen acres. Twelve acres were sown with the Hutchinson (white) wheat, twelve acres with the Soule (white) wheat, and thirteen acres with the Mediterranean. The fly made its appearance on both varieties of the white wheat last fall, but was confined to the parts not plastered. They appeared again this spring all over both varieties of the white wheat, but the wheat grew so strong where it had been plastered that it was well advanced in filling before their effect began to show itself. The heavy winds and rains at the commencement and during harvest so prostrated the affected part that we were unable to gather it, and my best judgment is that three to four bushels per acre were left on the ground. The Mediterranean was slightly injured in a few places, but not to materially affect its yield. We gathered and threshed the different varieties separately, and that which grew on the plastered parts separate from the unplastered part. The result was as follows: The Hutchinson wheat produced $7\frac{1}{2}$ bushels per acre on the part not plastered, and $15\frac{3}{4}$ bushels per acre on the part plastered; Soule wheat produced $8\frac{1}{2}$ bushels per acre on the part not plastered, and $19\frac{1}{10}$ on the part plastered; while the Mediterranean produced $19\frac{1}{4}$ bushels to the acre on the part not plastered, and $26\frac{1}{8}$ bushels to the acre on the part plastered. I had used plaster frequently before with marked success, but had never noted its effects with the same care as on the present occasion. Therefore, from the facts now before me, I draw the following conclusions: 1. That three-fourths to one bushel of plaster per acre on lands which have produced grain for a number of years in succession, applied on a well-set, growing clover crop, at some six inches high, and ploughed under when the seed balls have all turned brown, will add fifteen to thirty per cent. to a succeeding wheat crop over the same clover turned under without plaster. 2. That the vigor imparted to the growing grain by the use of plaster will, in a great degree, prevent the ravages of the fly on such varieties as the fly works most upon. 3. That clover and plaster, on most soils, are the cheapest manures that the farmer can use, yet he should not neglect the use of any others within his reach." He adds that the cost of the plaster used and of putting it on was about \$14, or fifty cents per acre.

3. *Prices of lime and plaster.*—The results of this experiment, if general, would justify the most liberal use of lime and plaster, at the highest prices, which appear in the column under the head of lime and plaster in the table. A barrel of plaster is estimated at 300 pounds, and the six barrels cost, when put on the fields, \$14, equal to \$2 33 a barrel, or $\frac{77}{100}$ cents per pound. This is at the rate of \$15 45 per ton. The highest average price in the table for a State is \$13 12. The present prices of Nova Scotia plaster, unground, we suppose, is as follows: Boston, \$3 per ton; New York, \$4; Philadelphia, \$4 75; Baltimore, \$5. We know of no well-conducted experiments showing the general effects of plaster when used on clover. But with success, approximating to that detailed by General Orr, there is no manure that should be more sought after for general agriculture. It fully sustains his third conclusion, that "clover and plaster, on most soils, are the cheapest manures that the farmer can use." And in view of this result, no greater benefit could be conferred on agriculture than determining

what is the effect of plaster on clover according to the character of the soil, and the season, and the kind of plaster.

4. *Manures*.—The first column, under this heading in the table, shows a fair progress in the use of barn-yard manure. Maryland and Illinois are the only States below the general average, and the decrease in these is very slight. New Hampshire, Connecticut, New Jersey, and Kentucky, are about a half-tenth above the average, whilst all the other States range from one to four-tenths above it. Our correspondents by letter bear general testimony to the increasing interest felt for the saving of this manure. With increasing means farmers are giving more attention to sheltering their stock, and with this care comes one of the best profits of stock raising—the greater amount and better quality of manure. Still there is room for a greater ratio of progress, even when labor is so scarce, for the high prices everywhere prevailing for agricultural products demand the best economy in feeding; and how better can this be observed than that increase of shelters, which stops only when every head of stock is reposing in its stall during the winter nights? If there is any one thing that should be regarded more than another, as a standard of superior farming, it is this provision for stock; and where it is wanting, no matter how rich the soil, it is an evidence of the practice of that agriculture which recklessly exhausts the soil.

The second question, under the head of manures, relates to the increase or decrease of guano and the phosphates. The column that embodies the answers is not satisfactory, for it represents a decrease. This, we are assured, is in consequence of the high price of guano, and the opinion of excellent farmers near the sea-board has been adverse to its use at high prices. But both these manures are so often adulterated by dishonest dealers that the reputation of all is injured. If commerce is protected by inspectors of the quantity and quality of articles, why is not agriculture also in the quality of those articles which no personal inspection of the purchaser can shield him against imposition?

These evils must find their remedy, under such want of protection, in the greater use of clover and plaster, and in the more careful saving of bones, which might easily and profitably be done, from the family up to the slaughtering houses, where so many are lost through neglect. The refining of sorghum molasses will compel this saving, that bone charcoal may be had, which is used for manure when no longer suited for refining purposes. The establishment of bone charcoal manufactories at packing and slaughtering houses will cause a general saving of bones, and in this way our agriculture receives its necessary supply of this manure.

We have laid before our readers the successful result of the use of clover and plaster, both in the large increase of the product and in its exemption from rust. We here add another of the use of barn-yard manure, attended with like advantages. It is taken from the same article on the wheat plant:

Mr. George D. Hendricks, of Preble county, Ohio, in stating from his practical experience the necessity of early cutting wheat when severely injured by rust, says: "Field No. 2 being only half set, injured by the fly and freezing out, produced *ten* bushels to the acre, weighing 56 pounds; but in this field, and in the poorest point in it, (clay land,) I had manured one acre in the centre of the field, and on which was, at least, *thirty* bushels of No. 1 wheat: neither the rust nor fly had affected it." Every farmer has seen how beneficial manure is to enable the plant to overcome the attacks of the fly. Whether the manure gives a sap distasteful to the larvæ of the fly, or simply pushes the growth so rapidly that the plant sustains uninjured its attack, all know how beneficial manure is when used in this way. It sustains the plant against the rust, by rapidly hastening its maturity. What it effects in the yield is seen in the above statement. Surely such compensating results should stimulate every farmer to constant vigilance in making, saving, and properly applying manures.

5. *Ploughing*.—Everything that has lived decays after death, until it disap-

pers from sight, being resolved into its original elements of gasses. All that remains is a very small quantity of ashes, being the mineral elements of the plant or body. These gases pass into the atmosphere. Oxygen unites with all bodies that have lived, when life ceases, and destroys them. Carbon, which is their principal element, becomes carbonic acid gas, which would soon unfit the atmosphere for animal life, had not nature provided two great absorbents of it—the leaves and blades of plants, and the soil. The power of the latter to absorb it is in proportion to the vegetable matter in the soil and its depth. Hence the great necessity of securing this element of fertility by keeping up the vegetable matter of the soil, and by deepening the soil with the plough. It is with this view that we have placed deep ploughing among the agencies by which the fertility of the soil is increased.

The general standard of fair ploughing is six inches in depth, and the column in our table shows that this standard is reached by most of the States. In Delaware the depth of ploughing is but four inches—the fault, probably, not of its farmers, as agriculturists, but as correspondents, for we have but one return of our November circular from this State. But this fault will not recur again, as steps are now being taken to secure, through members of Congress, a competent correspondent in every county of every State. The western States of Kentucky, Indiana, Illinois, Missouri, Wisconsin, Iowa, and Kansas, range from five to five and a half inches; nearly all other States from six to six and three-fourth inches. The *increase* in deep ploughing is satisfactory; the eastern States ranging from a *half-tenth* to *one-tenth* above the general average of ploughing, and the western States ranging from *one-tenth* to *three-tenths* above that average. Hence, progress in deep ploughing is greater in the western States, where most needed, for no matter how rich a soil may be, or how good the crops it yields from shallow ploughing, a proper regard to preserving its fertility requires the deepening of the cultivated soil.

6. *The weather.*—The climate of the Mississippi valley has been characterized by the severity that has been noticed in all of our monthly reports since July. Near the southern boundary line of Iowa, the thermometer has been down to ten degrees below zero, and snow has fallen to a foot in depth. The same cause that produced the frosts of July, August, and September seems still to be operating. But, generally, the weather has been very favorable for the recently sown crops and farm work. Our columns under the head of weather in the table, show 768 weeks favorable, 398 dry, and 435 wet; and but 31 very dry, and 51 very wet. This is as favorable as could be expected in a climate so varied as that of the States from which the returns are made. A result of this favorable condition is, that pastures have kept up, and but little feeding, other than pasturing, was necessary before the middle of December. The meteorological part of this report will be found more than usually interesting.

EXPORTS AND IMPORTS.

Under this head we design to give a monthly statement of the exports of breadstuffs and of meats for the past year, ending the 1st day of last September as to breadstuff, and from that time to the publishing of each report. The general imports and exports will also be given, that our readers may see how the national family is living; whether economically, within its means; or extravagantly, beyond them.

Exports of breadstuffs.

	Flour, (bbls.)	Meal, (bbls.)	Wheat, (bus.)	Corn, (bus.)
From September 1, 1862, to September 1, 1863.....	3, 018, 135	135, 427	25, 595, 678	11, 003, 208
Since Sept. 1 to Dec. 11:				
To Great Britain.....	271, 694	10	4, 183, 380	239, 459
Same time, 1862.....	317, 266	50	11, 593, 266	2, 894, 712
To the Continent.....	23, 530	-----	128, 295	-----
Same time, 1862.....	42, 946	-----	650, 902	11, 863

Exports of meats.

The exports of meats for the years 1862 and 1863, wanting the last week of the years, have been as follows:

	Beef.		Pork.		Hams & bacon	Lard.
	Tierces.	Barrels.	Tierces.	Barrels.	Per 100 lbs.	Per 100 lbs.
1863.						
To Great Britain.....	55, 575	1, 534	3, 758	46, 503	1, 457, 923	613, 858
To the Continent.....	150	4, 309	13	17, 866	131, 710	576, 219
To all other foreign ports..	236	38, 407	51	179, 485	70, 243	269, 963
Total, 1862.....	55, 961	44, 250	3, 822	243, 854	1, 659, 976	1, 459, 040
1863.						
To Great Britain.....	67, 711	5, 307	2, 166	34, 113	1, 723, 821	552, 579
To the Continent.....	1, 253	6, 665	-----	13, 840	227, 644	534, 208
To all other foreign ports..	199	40, 526	23	204, 583	77, 155	241, 528
Total, 1863.....	69, 163	52, 498	2, 189	252, 536	2, 028, 620	1, 328, 315

It will be seen from the above tables that our exports of breadstuffs have much decreased, but those of provisions or meats have increased during the year 1863.

The following tables exhibit the prices of breadstuffs at New York city on the 1st day of January for a series of years:

	Wheat.	Corn.	Flour.
1860, per bushel.....	\$1 17a\$1 55	\$0 85a\$0 91	\$5 15a\$5 75
1861, ".....	1 17a 1 55	69a 75	5 20a 5 75
1862, ".....	1 25a 1 52	66a 75	5 40a 5 80
1863, ".....	1 22a 1 62	65a 90	5 85a 8 25
1864, ".....	1 44a 1 85	1 23a 1 30	6 20a 8 50

The following are the prices of provisions on the 1st day of January, 1864, at the same city:

MESS PORK.	PRIME PORK.
One year old, per barrel, \$18 50a\$-----.	Old, \$14 37½a\$16 00.
New, per barrel, 19 50a 22 00.	New, 17 00 a 17 25.
Shoulders, 8½a9 cts.	Hams, 10a11 cts.
Lard, 12a13½ cts.	Middlings, 10a10½ cts.

General imports and exports of New York only, from January 1 to December 1 of each year.

IMPORTS.

1861.....	\$153, 151, 869
1862.....	161, 579, 699
1863.....	<u>170, 488, 479</u>

EXPORTS.

	Domestic produce.	Specie.
1861.....	\$117, 574, 561	\$3, 343, 237
1862.....	134, 374, 479	55, 763, 909
1863.....	<u>151, 403, 026</u>	<u>44, 495, 013</u>

Nominally, the condition of our foreign trade appears favorable, but these sums represent a different basis of value. The imports are the foreign value based on gold and silver; the exports on the home value based on our currency. Following the rule laid down in the annexed communication, that $33\frac{1}{3}$ per cent. should be deducted from the exports of domestic produce to equalize their value with that of our imports, the gold value of the exports of 1863 will be \$100,935,351. Deducted from the imports, the balance against this country is \$69,553,125. Last year the balance was also against us.

But the danger of the present condition of trade will be more clearly seen in a comparison of the imports and exports for the month of November. Up to September our exports of breadstuffs continued heavy, but the last English harvest, as shown in these reports, was a heavy one, and the crops of the continent were unusually large. Hence our exports of produce have fallen off heavily, and the destructive frosts here have materially advanced home prices.

The *imports* for November at New York, and entered for immediate use, are as follows:

1861.....	\$4, 641, 982
1862.....	6, 565, 185
1863.....	<u>10, 326, 929</u>

The *exports* of domestic produce during the same month, at the same city, have been as follows:

1861.....	\$14, 109, 763
1862.....	14, 060, 340
1863.....	<u>11, 413, 591</u>

Deducting $33\frac{1}{3}$ per cent. from the latter for the difference between currency and gold, and we have \$7,509,061 of exports against \$10,326,929 of imports—a balance against the country of 26 per cent.

An evil of such magnitude has but one favorable operation—its increase of the revenue derived from imports. The following figures show what this is:

RECEIPTS FROM CUSTOMS AT NEW YORK.

1861.....	\$19, 380, 133
1862.....	49, 589, 522
1863.....	<u>53, 637, 865</u>

In connexion with this statement of our imports and exports, we give place to the following letter and statement, as we think they point out the proper mode of comparing the imports and exports, when our currency is below the value of gold; and as such difference in value may exist some time yet, it becomes necessary to settle the correct mode:

OFFICE OF THE NEW YORKER HANDELS ZEITUNG,
December 2, 1863.

SIR: The rates of gold and foreign exchanges being ruled by the balance-sheet of our foreign commerce, it is of the utmost importance that merchants and farmers should be well informed in regard to this point; I therefore beg to suggest several corrections of the statement published in your report for October, (page 10.)

The foreign imports being payable in gold, or its equivalent, no difference between gold and currency should be added, but such difference be deducted from the produce exported. If, nevertheless, such calculation has been considered correct, therefore the total of both imports and exports are given in currency, said difference should have been added to the amount of specie. I have of late published similar statements, showing, in all cases, that the balance is in *our* favor, and, by correcting the error in your statement, the result will be the same. Taking your own figures, I beg to hand you a statement, which, however, does not include the remittances in five-twenties, which I have estimated in my own statements at a minimum of twenty millions of dollars. In reference to the reduction of foreign measures, money, &c., into our own, the enclosed slip,* from my paper, may prove useful.

Dear sir, your obedient servant,

M. MEYER,

Editor and Proprietor of Handels Zeitung.

Hon. ISAAC NEWTON,

Commissioner of the Department of Agriculture, Washington, D. C.

The statement is as follows:

IMPORTS AND EXPORTS FROM NEW YORK.

Totals from the October report of the Department of Agriculture:

<i>Imports</i> for ten months, 1863, from January 1 to November 1...	\$155, 000, 000	
<i>Exports</i> of produce for same time.....	\$145, 000, 000	
Less difference between gold and currency, at the rate of 40 added per 100, equal to $28\frac{4}{7}$, or, according to the actual average of $33\frac{1}{3}$ per cent., about	48, 333, 000	
	<u>96, 667, 000</u>	
Specie export from New York.....	\$39, 000, 000	
Specie export from California	25, 000, 000	
	<u>64, 000, 000</u>	160, 667, 000
Balance in our favor.....		<u>5, 667, 000</u>

* See "Weights and Measures," where we republish it, page 24.

To this balance the surplus of exports from Baltimore, Philadelphia, &c., and at least twenty million dollars five-twenties should be added.

In the above letter it is correctly stated that as our imports represent the value of a gold currency, our exports should be estimated by a like standard of value. It is certain that both imports and exports should be estimated either by this standard, or by our currency standard. The statement published in our last report was taken from a source entitled to high credit; but we think it erroneous, although it presents the common mode of comparing our imports and exports. To be more generally understood, the above per cent. of $28\frac{4}{7}$ needs some explanation. When we say gold is 40 per cent. premium, we naturally confound *premium* with *discount*, regarding them as like terms. But when a payment is made in a currency at a discount, and the rate per cent. of the discount is to be ascertained, this course is pursued. If the premium is 40 per cent., add that number of cents to $100=140$. Divide 140 into 100; but as it is the greater sum, add cyphers, making it 10000: into this the divisor (140) goes $71\frac{3}{7}$ times. That is the number of cents in gold a currency dollar is worth, when the first is 40 per cent. premium. To ascertain the rate per cent. of discount, subtract this number of cents from 100 cents. The remainder is $28\frac{4}{7}$ per cent discount.

THE HOG CROP.

In the October number of this report we referred to the number of hogs in Ohio, Michigan, Indiana, and Illinois, and computed the decrease of fattening hogs in these States at 806,139. We also referred to facts which showed that it was not possible for the fattening hogs to attain a weight at all approaching to the customary standard. In these States much the greatest diminution, both in numbers and weight, will be found. The packing season is near its close, and how far this judgment was correct may be inferred from the following remarks of the Cincinnati Price Current of December 22:

"The information we now have from the packing places, though not as full as it will be a week or ten days hence, yet is ample enough to leave no doubt in our mind that the deficiency in pounds will not be less than 33 per cent., and the complete returns may show even a greater deficiency than this. The falling off in the average weight of hogs is large—fully 12 per cent., we think—and the deficiency in the yield of lard will be in still greater ratio. In those districts where the corn was badly injured by frost, which included the greater portion of Indiana and Illinois, the average weight of hogs is the lowest ever known before, probably, and is 15 to 20 per cent. below that of last season."

As a record of the prices to which pork attained, we take the following from the same paper:

230 hogs, averaging 200 pounds net, at \$7 60 per 100 pounds.					
150	do.	200	do.	7 45	do.
200	do.	220	do.	7 70	do.
100	do.	275	do.	7 80	do.
350	do.	150	do.	6 75	do.
167	do.	180 to 190 pounds net, at \$7 30 per 100 pounds			

The comparison of the numbers packed for several years is as follows:

Total to December 22, 1863.....	307, 569
Do..... do.... 1862.....	435, 917
Do..... do.... 1861.....	282, 700
Do..... do.... 1860.....	263, 363
Do..... do.... 1859.....	372, 876
Do..... do.... 1858.....	336, 943

Total to December 22, 1857	261, 358
Do do.... 1856	312, 702
Do do.... 1855	328, 885
Do do.... 1854	275, 665
Do do.... 1853	279, 875
Do do.... 1852	332, 340
Do do.... 1851	282, 822
Do do.... 1850	265, 335

Chicago is the greatest packing place in the country. and, referring to the state of the trade in provisions at that city, the Chicago Journal of Commerce of December 24 says: "The fact is now quite evident that the hog crop will fall largely short in quality and quantity, and this has stimulated a large speculative demand."

THE DECREASE OF WHEAT PRODUCTION IN IRELAND.

The production of wheat in England is as important for the consideration of the American farmer as that of his own country. Hence the following statistics of the wheat crops in Ireland will be read with interest by him. They are furnished the department by John Young, consul at Belfast, Ireland, one of our most intelligent commercial agents, especially fitted for his position by his knowledge of agriculture and by his being a native of Belfast:

Table showing the wheat crops of Ireland.

	Quarters.		Quarters.
1847	2, 926, 000	1856	1, 629, 000
1849	2, 168, 000	1857	1, 662, 000
1850	1, 550, 000	1858	1, 746, 000
1851	1, 493, 000	1859	1, 468, 000
1852	1, 154, 000	1860	1, 271, 000
1853	1, 113, 000	1861	856, 000
1854	1, 452, 000	1862	683, 000
1855	1, 520, 000		

Mr. Young remarks that this decrease is attributable to *three* causes: 1, the removal of prohibitory duties off the importation of foreign grain; 2, the decrease of the native population of one-third by emigration to the United States and the British colonies; and 3, the newly inaugurated policy of many land owners in driving off the agricultural laborers and throwing their lands into grazing farms. In proof of the last cause he refers to the fact that in 1863 there was an increase of 12,700 cattle under two years old, and of 19,000 under one year old.

FLAX CULTIVATION IN IRELAND—AN AMERICAN PROJECT.

The cultivation of flax has received much attention in Ireland since the rebellion here has cut off the supplies of cotton. The increase in the acreage of this crop is as follows, as stated by Mr. Young:

1860.....	128, 000 acres.
1861.....	147, 000 acres.
1862.....	150, 000 acres.
1863.....	213, 000 acres.

This increase shows that this change in the agricultural productions of Ireland is favorable to the American grain producer.

On the subject of flax cultivation, Mr. Young says:

"Every effort possible will be made to enlarge the area of flax in Ireland during the next few years. The farmers of Ireland are slow, however, in changing their habits, and scarcely yet aware of the enormous increase of demand. This town of Belfast has risen to its present wealth and beauty mainly by its linen trade. Orders are still flowing in to the manufacturers, but their ability to meet the demand is held in check by the small quantity of flax produced. The machinery is here, the active capital ready, the demand great, but flax enough is not grown, either in Ireland or elsewhere. *Why should not the farmers of the United States step into the opening and raise flax for export to this country?*"

In answer to this inquiry it may be said that here the agricultural labor of the country is now taxed to its utmost. Emigrants, accustomed to raising flax, could find any demand for their labor here, as also laborers in any branch of agriculture, or in any department of industry. The demand for flax is also great here, and an enterprise is now on foot to add a hundred thousand acres to its production next year. We had the pleasure of meeting Isaac A. Hedges (so well known for his energy in fostering the production of sorghum molasses and sugar) in this city last week, and from him we learn that capitalists at Chicago are about to devise some efficient plan to add such increase to the flax production in northern Illinois. Aware of the scarcity of labor, and that the farmer will not grow flax if required to do all the labor connected with the production of flax in bales, they will only require of him to sow it on fields well ploughed, harrowed, and rolled, and to cut it with the reaper and put it up in sheaves. The company will come with thrashers and clean the seed. They will require enough ground on the farm necessary to spread out their flax for rotting. They will also water-rot it when soft water can be had. They will, with their own machinery, break, clean, and bale the flax. Mr. Hedges, as their active agent, is now visiting the eastern States to examine all recent improvements in these various processes, with a view of profiting by them in this important enterprise. Mr. Young may see his inquiry answered by bales of flax in Belfast from America.

WEIGHTS AND MEASURES.

The following letter has been received by the Commissioner of Agriculture, from, evidently, an intelligent gentleman. We always desire a correction of errors into which we may fall, for, forced by the necessities of a monthly report to write hastily, and with no statistics which this division demands, and, from its recent establishment, without that time necessary to settle perplexed questions, we know that errors will be made, and to correct them will give more satisfaction than chagrin. Our comments will follow.

"CHARLES CITY, IOWA, December 11, 1863.

"DEAR SIR: Will you allow me a word with regard to the subject of English grain measures, and the remarks thereupon, in the October report?

"I will not consume your time in endeavoring to expose the fallacy, as it appears to me, of the reasoning by which it is attempted to prove that the imperial bushel must be rated at ten pounds higher than the Winchester, even when the latter is rated correctly, but will simply mention one fact to show that the difference of ten pounds, as first obtained, is an error. As is remarked, the Winchester bushel contains, in theory, 64 pounds troy, equal, according to the report, to 48 pounds avoirdupois. This is a mistake, and arises from assuming that the avoirdupois ounce is equal to the ounce troy. But the latter is *heavier* than the former. If we reduce 64 pounds troy to grains, ($64 \times 5,760$.) and divide by 7,000, the correct result is reached, viz: 52.66+ pounds. If, then, we call the

imperial bushel 58½, the difference between the two measures is not 10 pounds, but 5.66+ pounds. As all the argument is based on this mistaken calculation, and falls with it, there is no necessity for directly refuting it.

"It appears probable that the English wheat bushel is not the imperial bushel at all, but simply an independent measurement, which has come into use from the practice of selling wheat by the quarter, and the convenience of having a measurement of even bushels corresponding with the weight. Whether, in practice, they have a measure of this capacity, or attain the object by heaping the imperial bushel, must be determined by some one acquainted with the facts in the case.

Yours, truly,

C. W. ATKINSON."

P. S.—It might be well to notice that there is scarcely a possibility that the imperial bushel is ever rated at 70 pounds, inasmuch as the *heaviest* weight assigned to the Winchester bushel is 60 pounds, and the imperial bushel is only $\frac{1}{32}$ larger, making, at the highest estimate, less than 62 pounds, actual weight. (Your new volume, just issued, is read with great favor.) A."

Comments.—And yet Webster, in his definition of the word *quarter*, says, "it is a quarter of a ton in weight"—which is 560 pounds—and that "it is eight bushels of grain." No conclusion, then, is more certain than that the English bushel is 70 pounds, if he is correct in this definition.

In Mr. Woolhouse's book on measures, weights, and moneys, printed in London, the tables are given of troy and avoirdupois weights. In the first, one ounce is 480 grains; in the second, it is 437½ grains. The troy pound is 5,760 grains; the avoirdupois pound, 7,000 grains. Between these tables, the author says: "The imperial standard pound troy, made in the year 1758, is that from which all other weights are obtained, so that 5,760 grains is a troy pound, and 7,000 *such* grains is a pound avoirdupois, *the grain in each case being identical.*" Of course, then, the latter pound is 21.53 per cent. greater than the former. Fix the Winchester bushel at what we may, the imperial is this much greater according to this authority. His declaration, we suppose, is founded on the effect of the act of Parliament passed June 17, 1824, which went into operation January 1, 1826. In the abstract of that act, speaking of the standard fixed by it for ascertaining the weight by distilled water of a fixed temperature, he says: "Such cubic inch of water is equal to 252.458 grains, the standard troy pound being 5,760 *such* grains, and the avoirdupois 7,000 *such* grains."

This act, because it was not radical, but confounded what was already a perplexity, from the multifarious weights and measures of Great Britain. In 1838, Parliament sought to again legislate on the subject, and appointed a commission, which reported in favor of the decimal system. But the measures proposed by it, being radical, created such an opposition that no reform has yet been made. If any one is curious to see what British weights and measures are, we gratify his laudable, and we hope it will prove a useful, curiosity, by the following extract from a recent article written by an Englishman. If he can learn from it what an English bushel of wheat is, he is clearer-sighted than we are.

"If we buy a bushel of wheat at Bridgend, we get 168 pounds; at Darlington, 73½; at Worcester, 62; at Monmouth, 80; at Shrewsbury, 75; at Wolverhampton, 72; at *Manchester*, 60 or 70, according to whether we are dealing in *English or American wheat*; at Newcastle, 63; at Caermarthen, 64."

We have italicised what is significant to the controversy on hand.

And here we leave the matter, asking Congress to look at this inextricable difficulty of the English, that it may save this country from a like one. Our many State legislatures are now fixing the weights and measures of the country, and each differing from the other, and each constantly changing its acts. The English are agreed that if existing weights and measures could be abolished.

the decimal system ought to be established. In time, Congress rescued our currency; let it complete the work by a like reformation of weights and measures, making, by its power over commerce, their standard that of the entire country.

The difficulty of determining foreign measures and values causes our commercial papers to make their quotations as they find them in foreign market prices; and thus, what these prices are, is a matter that agriculturalists cannot learn from the prices as stated. The Commissioner, therefore, has declared his intention to give them in American measures and values, that farmers may have a knowledge of prices abroad.

The following table will be useful to all persons having an interest in determining the most common of foreign measures, weights, and moneys.

Table of foreign weights, measures, and money.

United States of America.	Weights.	Grain measures.	Long measure.	Money.	Liquid measure.
	100 pounds.	100 bushels.	100 yards.	\$100 average exchange of 10 yrs.	100 gallons.
Aleppo	20.28 rottoli	4.58 mokuks.	135.00 piks	2,254 piasters.	
Amsterdam	91.80 pounds.	43.56 sacs	132.94 ells	245 florins	2.43 ahm.
			131.68 brab. ells.		
Antwerp	96.47 pounds	45.65 quarters.	91.44 metres	520 francs	3.70 vats.
	45.36 Belg. livres	35.21 mudden.	76.20 aunes.	1,960 milreis.	
Babia	3.09 arrobas	116.71 alqueiras.	83.13 varas.		
	98.92 arratels.	437.00 port. moys.			
Basle	91.97 livres	26.60 sacs	152.40 ells.	520 francs	2.49 saumes.
			76.20 aunes.	352 Swiss. fres.	
Batavia	73.73 cattys	50.70 quarters.	132.94 aunes.	245 florins	
			110.35 covidi.		
Bombay	142.14 seers	41.26 candys	133.33 guzas	925 rupees.	
Brazil	3.09 arrobas	306.36 alqueiras.	83.13 varas.	1,960 milreis.	
	98.82 arratels.	4.37 port. moys.			
Bremen	90.99 pfund.	49.05 scheffel	158.00 ellen.	130 l'd'or thlr.	2.61 ohm.
					1.74 oxhoft.
Buenos Ayres. .	3.95 arrobas	66.32 fanegas	108.00 varas	1,610 piasters.	
	98.56 libras	5.52 cargaz.		paper cur'cy.	
Calcutta	48.70 M. B. seer.	5.09 khahoon	100.00 guzs	225 rupees.	
	53.58 M. F. seer.			204.08 rup sicca	
Canada	100.00 pounds	100.00 bushels	100 yards	25 Can. p'ds.	
China	75.00 cattys	29.68 sheh.	270.22 covid	72 taels.	
Copenhagen	190.72 pounds	26.14 tuns	145.67 ells	96 species.	2.52 ohm.
				192 R. B. thlr.	
Cuba	98.56 libras	34.28 fanegas	108.00 varas.	98 pesos.	
Egypt	36.73 oche.	12.81 ardeb Alex.	134.33 piks	100 talleri.	
		19.21 ardeb Cairo			
		12.20 ard Rosetta			
England	100.00 pounds	12.50 quarters	100.00 yards	20.75 p'd stirl.	83.33 imp. gall.
France	45.36 kilogr's	35.82 hectolitres.	91.44 metres	520 francs	3.7 hectolitres.
			76.20 aunes.		
Genoa	45.36 kilogr's.	31.19 mine.	36.67 canne	520 lire Ital.	
	143.19 libbre				
Greece	30.17 mine	33.85 kilo.	90.35 piks	590 drachmes.	
Hamburg	190.72 new pds.	64.11 fass.	159.54 ells.	277 mark b'co	52.24 viertel.
Leipsic	190.72 new pds.	32.07 scheffel	161.84 ells	140 thaler	4.98 eimer.
Lisbon	98.82 aratels.	4.37 moys	83.13 varas.	90 milreis.	22.60 almude.
		65.65 fanegas			0.78 wine pipa.
Madrid	98.56 libras	66.32 fanegas	108.00 varas.	134 pesos ex.	23.39 cantaraz.
Mexico	96.15 libras	66.32 fanegas	108.00 varas.	100 pesos.	
Prussia	190.72 pounds	65.20 scheffel	137.10 ells.	140 thalers.	5.50 eimer.
Russia	110.76 pounds	17.06 izetverd.	128.57 archines.	465 roob. B. A	30.73 vedro.
	2.77 puds.			133 " silver.	
Sweden	135.57 pounds	24.44 tunne.	153.99 ells.	95 species.	147.84 kanne.
Trieste	60.93 libbre	42.73 stoja.	143.23 beac. silks.	218 florins silv.	5.70 barili.
			133.73 " woollens.		
Vienna	80.93 pounds	58.14 metzen	117.35 ells.	218 florins silv.	5.70 eimer.
	90.72 zollpfund.				
Yoll-Verein	90.72 pounds			140 thaler.	
				245 florins.	

* Grain and salt are sold by weight in the maritime places of China. † Like the pounds of the Zoll-verein.

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of November, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this November compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for November, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND RAIN OF NOVEMBER, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
West Waterville.....	Kennebec.....	B. F. Wilbur.....	.....	o	.....	o	o	<i>In.</i>
Williamsburg.....	Piscataquis.....	Edwin Pitman.....	17, 19	52	30	10	36.6	5.20
Lisbon.....	Androscoggin.....	Asa P. Moore.....	3	60	30	17	42.7	8.09
Cornishville.....	York.....	G. W. Guptill.....	20	58	30	16	38.9	8.60
Steuben.....	Washington.....	J. D. Parker.....	17	56	30	9	39.5	5.90
NEW HAMPSHIRE.								
Claremont.....	Sullivan.....	Arthur Chase.....	3	59	30	18	39.6	3.55
Littleton.....	Grafton.....	Robert C. Whiting.....	17	60	30	16	38.5	1.05
North Littleton.....	do.....	Rufus Smith.....	17	54	30	4	30.1	.....
Stratford.....	Coos.....	Branch Brown.....	18, 20	51	30	6	35.3	2.76
VERMONT.								
Brandon.....	Rutland.....	David Buckland.....	5	58	30	15	40.5	2.33
Lunenburg.....	Essex.....	Hiram A. Cutting.....	17	65	30	9	36.7	2.25
Craftsbury.....	Orleans.....	James A. Paddock.....	17	55	30	7	34.8	2.38
Burlington.....	Chittenden.....	McK. Petty.....	5	53	30	12	37.5	2.27
Rutland.....	Rutland.....	Stephen O. Mead.....	5	64	30	16	.....	.....
Springfield.....	Windsor.....	Rev. J. W. Chickering.....	5, 6, 18	60	30	16	41.0	3.30
MASSACHUSETTS.								
New Bedford.....	Bristol.....	Samuel Rodman.....	12, 17	61	30	21	46.3	6.76
Sandwich.....	Barnstable.....	N. Barrows, M. D.....	3	62	30	19	45.1	6.79
Mendon.....	Worcester.....	John G. Metcalf.....	17	62	30	16	42.4	6.18
Amherst.....	Hampshire.....	Prof. E. S. Snell.....	17	61	30	18	41.1	5.28
Williamstown.....	Berkshire.....	Prof. A. Hopkins.....	20	60	30	16	39.7	0.42
Baldwinsville.....	Worcester.....	Rev. E. Dewhurst.....	17	60	.....	.....	.....	5.51
Topsfield.....	Essex.....	John H. Caldwell.....	20	65	30	21	4.41	5.14
Westfield.....	Hampden.....	Rev. E. Davis.....	20	67	30	18	40.9	5.43
RHODE ISLAND.								
Providence.....	Providence.....	Prof. A. Caswell.....	20	63	30	21	43.3	7.51

Temperature and rain of November, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
CONNECTICUT.								
Middletown	Middlesex	Prof. John Johnston.	20	66	30	20	43.3	5.02
Pomfret	Windham	Rev. Daniel Hunt.	17	63	30	17	41.9	5.57
New Haven	New Haven	D. C. Leavenworth.	5	62	30	25	44.0	.....
NEW YORK.								
New York	New York	Prof. O. W. Morris.	12	63	30	28	47.8	3.88
Fishkill Landing	Dutchess	Wm. H. Denning.	2	63	30	25	42.2	4.61
Fort Ann	Washington	P. A. McMore	4	72	10	10	41.3	2.83
South Hartford	do	G. M. Ingalsbee	5	62	30	18	41.4	2.08
Oswego	Oswego	William S. Malcolm.	14	59	30	20	40.9	8.40
Clinton	Oneida	Dr. H. M. Paine	5	68	30	14	42.6	2.75
Wilson	Niagara	E. S. Holmes, D.D.S.	14	62	30	22	40.8	0.14
South Trenton	Oneida	Storrs Barrows						4.50
Rochester	Monroe	Dr. M. M. Mathews.	5	68	30	20	40.5	2.97
Theresa	Jefferson	S. O. Gregory	5	64	30	16	45.8	4.91
Auburn	Cayuga	John B. Dill	5	70	30	22	40.3	.....
Skaneateles	Onondaga	W. M. Beauchamp.	5	64	30	14	38.7	.....
Gouverneur	St. Lawrence	C. H. Russell	19	54	30	21	38.0	3.75
NEW JERSEY.								
Newark	Essex	W. A. Whitehead.	5	65	30	25	44.3	2.61
Progress	Burlington	Thomas J. Beans	5	60	30	25	44.5	2.51
Paterson	Passaic	William Brooks	5	65	30	23	43.4	2.92
PENNSYLVANIA.								
Harrisburg	Dauphin	John Helseley, M.D.	5	65	30	26	45.3	3.05
Nazareth	Northampton	L. E. Ricksecker	3	70	30	23	45.0	.....
Canonsburg	Washington	Rev. W. Smith, D.D.	5	65	30	12	40.2	2.76
Fleming	Center	Samuel Brugger	5	72	23	22	41.2	2.25
Oil City	Venango	James A. Weeks	5	66	30	18	39.8	.....
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick.	5	69	30	25	47.1	2.96
Pittsburg	Alleghany	Prof. Dr. R. Mueller.	5	81	30	15	46.3	7.06
MARYLAND.								
Sykesville	Carroll	Miss Harriott M. Baer.	5	70	30	15	42.1	3.50
St. Mary's City	St. Mary's	Rev. J. Stephenson.	5	69	30	24	49.6	2.85
Chestertown	Kent	Prof. J. R. Dutton.	5	68	30	25	48.1	1.66
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Inst'n.	5	67	30	22	47.0	1.73
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	2	75	30	10	45.7	3.14
OHIO.								
Hillsborough	Highland	J. McD. Mathews.	5	69	30	12	42.7	2.83
Westerville	Franklin	Pf. H. A. Thompson.	5	66	30	10	40.8	2.25
Austinburg	Ashtabula	J. G. Dole and C. L.						
		L. Griffling	2	63	30	16	39.8	5.43
Kingston	Ross	Prof. Jno. Haywood.	2, 5	70	30	14	43.3	3.28
Kelley's Island	Erie	Geo. C. Huntington.	4	59	30	19	43.1	3.51
New Lisbon	Columbiana	J. F. Benner	5	70	30	16	37.4	1.04
Welshfield	Geauga	B. F. Abell, A.M.	2	61	30	12	40.3	4.62
Portsmouth	Sciota	L. Engelbrecht	5	67	30	20	46.3	1.83
Toledo	Lucas	J. B. Trembly, M.D.	2	65	30	17	44.2	3.83
College Hill	Hamilton	John W. Hammitt.	2	70	30	11	43.7	3.75
Cincinnati	do	G. W. Harper	2, 5	75	30	12	43.5	2.05
Urbana	Champaign	Prof. M. G. Williams.	2, 5	70	30	9	42.7	3.48
Cleveland	Cuyahoga	Gustavus A. Hyde	2, 19	63	30	18	44.0	4.15
Bowling Green	Wood	W. R. Peck, M.D.		61	30	19	43.0	3.48

Temperature and rain of November, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MICHIGAN.								
Monroe.....	Monroe.....	Florence E. Whelpley	4, 19	60	30	20	42.0	2.67
Ypsilanti.....	Washtenaw.....	C. S. Woodard.....	5	62	29	15	41.7	2.54
Lansing.....	Ingham.....	Prof. R. C. Kedzie..	5, 13, 19	59	29	12	39.8	0.41
Clifton.....	Keweenaw.....	Wm. Van Orden, jr.	16	64	23, 28, 29	8	29.8	1.95
INDIANA.								
Muncie.....	Delaware.....	E. J. Rice.....	2	68	30	7	40.6	4.45
Newcastle.....	Henry.....	T. B. Redding, A.M.	2	70	30	9	41.5	3.73
Spiceland.....	do.....	William Dawson.....	2	70	30	7	40.9	4.53
South Bend.....	St. Joseph.....	Reuben Burroughs..	19	67	30	9	40.1	4.72
Rockville.....	Park.....	Miss M. A. Anderson.	13	66	30	5	33.5	5.13
New Harmony.....	Posey.....	Jno. Chappellsmith..	2	72	29	12	44.7	2.48
New Albany.....	Floyd.....	Dr. E. S. Crozier ..	2	80	30	15	47.9	2.22
ILLINOIS.								
Peoria.....	Peoria.....	Frederick Brendel ..	13	67	29	4	40.9	0.71
Galesburg.....	Knox.....	Prof. W. Livingston.	11	62	29	2	37.5	0.34
Manchester.....	Scott.....	Dr. J. & Ellen Grant.	13, 18	68	29	0	38.9	1.78
Winnebago.....	Winnebago.....	J. W. Tolman.....	11, 12	60	29	- 1	35.1	2.50
Augusta.....	Hancock.....	S. B. Mead.....	4	69	29	- 3	38.9	0.61
Waverley.....	Morgan.....	Timothy Dudley.....	4, 18	68	29	0	39.3	2.05
Upper Alton.....	Madison.....	Mrs. Anna C. Tribble.	4	70	29	4	41.0	.....
Pekin.....	Tazewell.....	J. H. Riblett.....	13	65	29	1	39.9	0.94
Ottawa.....	La Salle.....	Emily H. Merwin...	4	65	29	0	37.0	1.85
WISCONSIN.								
Milwaukee.....	Milwaukee.....	I. A. Lapham, LL.D	5	59	29	5	.....	3.59
Manitowoc.....	Manitowoc.....	Jacob Lips.....	2	56	29	6	35.9	3.69
Beloit.....	Rock.....	Henry D. Porter.....	2, 18	57	29	0	34.8	4.71
Odauah.....	Ashland.....	Edwin Ellis.....	.....	.....	29	- 6	.....	.....
MISSOURI.								
Harrisonville.....	Cass.....	John Christian.....	4	78	28, 29	6	41.8	.....
Canton.....	Lewis.....	George P. Ray.....	11	77	29	- 5	38.3	1.26
IOWA.								
Iowa City.....	Johnson.....	Pr. T. S. Parvin, A.M	12	61	28	0	33.8	3.87
Independence.....	Buchanan.....	A. C. Wheaton.....	12	63	29	- 3	33.8	4.10
Iowa Falls.....	Hardin.....	Nathan Townsend ..	18	53	28	- 5	31.0	4.59
Muscatine.....	Muscatine.....	Suel Foster.....	4	62	30	- 1	33.6	1.50
Lyons.....	Clinton.....	P. J. Farnsworth, M.D	11, 12	61	29	0	37.3	3.30
Algona.....	Kossuth.....	Dr. F. & Miss L. McCoy	12	62	28	- 7	32.4	1.69
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	18	67	29	- 6	34.7	5.65
Fort Madison.....	Lee.....	Daniel McCreedy.....	4	67	29	- 2	39.2	0.65
Pleasant Plain.....	Jefferson.....	T. McConnel.....	13	66	29	- 4	37.4	0.67
MINNESOTA.								
St. Paul.....	Ramsey.....	Rev. A. B. Paterson.	12	55	28	- 11	30.1	0.29
Forest City.....	Meeker.....	H. L. Smith.....	11	57	28	- 8	31.0	0.20
NEBRASKA.								
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton	6, 11, 12, 17, 18.	60	28	- 3	35.7	1.65
Fontenelle.....	Washington.....	John Evans.....	6, 11, 12, 18.	60	28	- 15	32.9	2.35
KANSAS.								
Fort Riley.....	Davis.....	Elford E. Lee.....	18	74	29	- 4	42.9	1.24
Manhattan.....	Riley.....	H. L. Denison.....	18	68	28	1	38.2	2.48
SOUTH CAROLINA.								
Beaufort.....	Beaufort.....	Dr. and Mrs. Marsh	3, 6, 7, 8	84	30	29	59.0	.....
NEW GRANADA.								
Aspinwall.....	.....	W. T. White, M.D..	27	83	16	72	77.2	17.59

From the foregoing table, it will be seen that the highest temperature in November, among the stations from which registers have been received, (excepting South Carolina and Aspinwall,) was 81 at Pittsburg, Penn.; and next to this were the two stations in Missouri, being 77 at Canton and 78 at Harrisonville. The lowest temperature, 15 degrees below zero, was at Fontenelle, Nebraska. The greatest range of temperature at any one station during the month was 82 degrees, at Canton, Missouri; and the least (excepting Aspinwall) was 35, in the city of New York. At Canton the thermometer rose 62 degrees from 7 a. m. of the 10th, to 2 p. m. the next day.

The lowest temperature was at the end of the month. In the table the minimum is marked on the 28th and 29th in the States west of Indiana, and thence eastwardly on the 30th. The actual minimum, however, of this depression of temperature at many of the eastern stations, as was the case at Washington, probably occurred, not on the 30th of November, but on the following day, and therefore does not come in the table for November; nor will it appear in the table for December, because, as the season of cold is advancing, lower temperatures will be recorded during that month. Thus it happens that when the depression which gives the lowest temperature occurs at the close of a month, the usual tables of maxima and minima necessarily show a somewhat lower minimum for the western States, as compared with the eastern, than when it begins early enough in the month to bring its minima at all the stations in the same table.

It may also be worth a passing remark, that the maxima and minima are influenced somewhat by the time of day at which they occur. For if the cause (whatever it may be) which produces an unusually high temperature attains its greatest influence about sunrise, its effect will be less perceptible on the maximum of the day than if it occurred at 2 or 3 p. m., or at the hours when the heat of the day is generally the greatest. And so also with regard to the minimum. Thus at Welshfield, Ohio, Fort Madison, Iowa, Ottawa, Illinois, and several other places, the maximum of November occurred at 9 p. m.; and at Claremont, N. H., the minimum (omitting the last day of the month) was at 2 p. m. on the 10th. It is evident that the first stations would have showed a higher temperature, and the last a lower, on the days named, if the causes which produced those extremes had operated to their full extent a few hours earlier in each case, or in conjunction with the ordinary extremes of the day.

The beginning and progress of the cold at the end of November is very distinctly marked in the hourly observations kept at the Smithsonian Institution. From these it appears that during the day and night of Saturday, the 28th, (when the cold had descended to the minimum in Minnesota,) the temperature was rising, and at 3 o'clock on the morning of Sunday it stood at 52 degrees, which was higher than it had been at any time for a week previous. The wind, which had been from the south since the 26th, now changed to northwest, and the temperature began to fall, descending to $43\frac{1}{2}$ at 2 p. m. of Sunday, 28 at 2 p. m. on Monday the 30th, and 21 at midnight, at which point it remained stationary till 7 a. m. the next morning, December 1, when it began slowly to rise again. The wind, previous to the rise, changed to the south. The barometer rose during the fall of temperature, and reached its highest point, 30.542, at 10 a. m., December 1. Rain fell on the 28th from $6\frac{1}{2}$ a. m. to 2 p. m.

COLD ABOUT THE TENTH OF NOVEMBER.

About the 10th of the month a low temperature prevailed at all the stations; being, at a large number of them, the lowest of the month except during the last few days. At some places in the middle and eastern States, a lower temperature occurred at 7 a. m. of the 2d than at this period, but not a lower daily

mean. At Fort Ann, New York, a lower temperature is recorded on the 10th than on any other day of the month, which is not the case with the register from any other station. The following table shows the minimum (so far as it can be ascertained from only three observations a day) at all the stations during this depression, with the hour at which it occurred; also the temperature and date of the coldest day. West of Ohio the 9th was the coldest day during this period, and further east the 10th. The abrupt change from the 9th to the 10th, which appears in the column of coldest day, would not exist, if, instead of taking the mean of the 7, 2, and 9 observations all on the same day, we were to take the mean of whichever three successive ones give the lowest temperature. For instance, if we used the 2 and 9 p. m. observations of the 9th, and 7 a. m. of the 10th, or 9 p. m. of the 9th and 7 a. m. and 2 p. m. of the 10th, the mean of a period of 24 hours would be given intermediate between the 9th and 10th, or rather composed partly of both those days, and instead of the abrupt passage from the one day to the other, which now appears in the table, we would have a gradual transition.

Table showing the lowest temperature during the cold which prevailed about the 9th and 10th of November, 1863.

Place.	Lowest degree.		Coldest day.	
	Date.	Temper- ature.	Date.	Temper- ature.
MAINE.				
Cornishville.....	10, 9 p. m.	25	10.....	29.3
Lisbon.....	11, 7 a. m.	25	11.....	35
Steuben.....	11, 7 a. m.	22	10.....	30.6
Williamsburg.....	11, 7 a. m.	22	11.....	28
NEW HAMPSHIRE.				
Claremont.....	{ 9, 7 a. m. }	22	10.....	25
Littleton.....	{ 10, 2 p. m. }		10.....	21.7
North Littleton.....	9, 7 a. m.	24	10.....	21
Stratford.....	11, 7 a. m.	19	10.....	21
Stratford.....	{ 9, 7 a. m. }	24	10.....	26
Stratford.....	{ 11, 7 a. m. }			
VERMONT.				
Brandon.....	10, 9 p. m.	23	10.....	27.5
Burlington.....	{ 10, 7 a. m. }	26	10.....	27
	{ 10, 9 p. m. }			
Craftsbury.....	10, 9 p. m.	22	10.....	24
Springfield.....	9, 7 a. m.	22	8.....	28
Lunenburg.....	10, 7 a. m.	20	10.....	25
Rutland.....	10, 9 p. m.	18	.....	.....
MASSACHUSETTS.				
Amherst.....	9, 7 a. m.	26.5	10.....	32.2
Baldwinsville.....	10, 9 p. m.	21	10.....	28.3
Mendon.....	10, 9 p. m.	25	10.....	30.2
New Bedford.....	11, 7 a. m.	27	10.....	32.3
Sandwich.....	10, 9 p. m.	26	10.....	30.2
Topsfield.....	10, 9 p. m.	30	10.....	34.3
Williamstown.....	9, 7 a. m.	27	.....	.....
Westfield.....	11, 7 a. m.	28	10.....	33.3

Table showing the lowest temperature, &c.—Continued.

Place.	Lowest degree.		Coldest day.	
	Date.	Temperature.	Date.	Temperature.
RHODE ISLAND.				
Providence	10, 9 p. m. } 11, 7 a. m. }	28	10.	32.1
CONNECTICUT.				
Middletown	11, 7 a. m.	28	10.	34
New Haven	11, 7 a. m.	29	10.	37
Pomfret	11, 7 a. m.	25	10.	30.2
NEW YORK.				
Auburn	10, 7 a. m.	28	9, 10.	31.3
Clinton	9, 9 p. m.	31	10.	33.6
Fort Ann	10, 9 p. m.	10	10.	16
Fishkill	9, 7 a. m. } 10, 9 p. m. }	31	10.	34
Gouverneur	10, 9 p. m.	25	10.	28.6
New York	11, 7 a. m.	32.5	10.	36.9
Skaneateles	9, 9 p. m. } 10, 7 a. m. }	25	10.	27.3
Oswego	11, 7 a. m.	31	9.	33
Rochester	10, 7 a. m.	30	10.	31.6
South Hartford	10, 7 a. m.	24	10.	28.3
Theresa	10, 7 a. m. } 10, 9 p. m. }	28	10.	29.3
Wilson	9, 7 a. m. } 10, 9 p. m. }	30	9, 10.	32.7
NEW JERSEY.				
Passaic Valley	9, 7 a. m.	27.5	10.	33.2
Progress	10, 7 a. m. } 11, 7 a. m. }	28	10.	32
PENNSYLVANIA.				
Canonsburg	9, 9 p. m. } 10, 7 a. m. }	20	10.	25.3
Fleming	9, 9 p. m.	27	9, 10.	31
Harrisburg	10, 7 a. m. } 11, 7 a. m. }	34	10.	39.3
Nazareth	11, 7 a. m.	28	10.	33
Oil City	10, 7 a. m.	22	10.	27.7
Philadelphia	10, 7 a. m. } 11, 7 a. m. }	32	10.	35.5
Pittsburg	10, 7 a. m.	23	10.	29.3
MARYLAND.				
Sykesville	11, 7 a. m.	25	10.	30.7
St. Inigoes	10, 7 a. m. } 11, 7 a. m. }	34	10.	37
Chestertown	10, 7 a. m. } 11, 7 a. m. }	34	10.	37
DISTRICT OF COLUMBIA.				
Washington	11, 7 a. m.	30	10.	35.5
SOUTH CAROLINA.				
Beaufort	10, 7 a. m.	*32	10.	*43.7

* These temperatures were the lowest of the month, except on the 30th. The 8th was the warmest day of the month; mean temperature, 73.

Table showing the lowest temperature, &c.—Continued.

Place.	Lowest degree.		Coldest day.	
	Date.	Temperature.	Date.	Temperature.
OHIO.				
Austinburg	9, 7 a. m.	26	10.	29.6
Cincinnati	10, 7 a. m.	26	9, 10.	32
Hillsborough	10, 7 a. m.	23	10.	29.3
Kelley Island	10, 7 a. m.	29	10.	33
Kingston	10, 7 a. m.	28	10.	31.3
New Lisbon	10, 7 a. m.	24	10.	29
College Hill	9, 7 a. m.	26	9.	30.3
Portsmouth	10, 7 a. m.	31	10.	35.1
Urbana	10, 7 a. m.	23	10.	29.3
Weishfield	10, 7 a. m.	24	10.	28
Westerville	10, 7 a. m.	28	9.	29.3
Cleveland	10, 9 p. m.	31	10.	33.3
Bowling Green	10, 7 a. m.	26	10.	33.5
KENTUCKY.				
Louisville	10, 7 a. m.	22	10.	31
MICHIGAN.				
Clifton	9, 7 a. m.	22	9.	25
Monroe	10, 7 a. m.	28	9.	32.7
Ypsilanti	10, 7 a. m.	18	10.	28.7
Lansing	10, 7 a. m.	16	10.	27.3
INDIANA.				
Muncie	10, 7 a. m.	19	10.	29.3
New Castle	10, 7 a. m.	23	9.	32
New Harmony	10, 7 a. m.	23	9.	33
South Bend	9, 7 a. m.	13	9.	27.7
Rockville	10, 7 a. m.	20	9.	29.7
New Albany	10, 7 a. m.	27	10.	34.3
Spiceland	10, 7 a. m.	21	10.	30.3
ILLINOIS.				
Augusta	10, 7 a. m.	21	9.	29
Galesburg	10, 7 a. m.	20	9.	29.1
Ottawa	10, 7 a. m.	23	9.	30
Manchester	10, 7 a. m.	22	9.	28.7
Orchard Farms	10, 7 a. m.	20	9.	31.1
Peoria	10, 7 a. m.	21	9.	31.8
Upper Alton	10, 7 a. m.	20	9.	28
Waverly	10, 7 a. m.	18	9.	27.7
Winnebago	10, 7 a. m.	20	9.	26.6
MISSOURI.				
Canton	10, 7 a. m.	15	9.	28
Harrisonville	{ 9, 7 a. m. }	28	9.	37.3
	{ 10, 7 a. m. }			
IOWA.				
Algona	9, 7 a. m.	16	9.	23.3
Independence	9, 9 p. m.	17	9.	24.3
Iowa Falls	9, 9 p. m.	17	9.	21.7
Iowa City	10, 7 a. m.	20	9.	25.3
Lyons	10, 7 a. m.	26	9.	31.3
Muscatine	10, 7 a. m.	16	9.	26
Fort Madison	10, 7 a. m.	21	9.	31.3
Dubuque	10, 7 a. m.	24	9.	29
Pleasant Plain	10, 7 a. m.	19	9.	26

Table showing the lowest temperature, &c.—Continued.

Place.	Lowest degree.		Coldest day.	
	Date.	Temperature.	Date.	Temperature.
WISCONSIN.				
Beloit	10, 7 a. m.	18	9.....	26.7
Manitowoc.....	10, 7 a. m.	24	9.....	29
MINNESOTA.				
St. Paul.....	9, 7 a. m.	22	9.....	25
Forest City.....	9, 7 a. m.	15	9.....	25.6
NEBRASKA.				
Bellevue	9, 7 a. m.	29	9.....	30.7
Fontenelle	{ 9, 7 a. m. }	20	9.....	26.7
	{ 9, 9 p. m. }			
KANSAS.				
Fort Riley	{ 8, 9 p. m. }	35	9.....	39
	{ 9, 7 a. m. }			
	{ 9, 9 p. m. }			
Manhattan	10, 7 a. m.	28	9.....	33.3

Since the above table was sent to the printer, registers have been received from Bermuda, in which the reading of the thermometer at noon and the mean daily temperatures are given. These show very clearly that this depression of temperature prevailed also on that ocean island, but about two days later than in the Atlantic States. The mean temperature of the 11th was 63, and of the 12th 62, which were lower than that of any previous day during the season; and none lower occurred afterwards till the 2d of December, when the mild and steady temperature of the island was reduced to 63 at noon, and 60 for the mean of the day, under the influence of the same cold which was so severe in the United States in the last days of November.

MEAN TEMPERATURE OF NOVEMBER.

By the following table it appears that November of the present year has been warmer, in nearly all parts of the country from which registers have been received, than the average of the month for a period of five years, from 1855 to 1859. The only exceptions, so far as shown by this table, are Indiana, Missouri, and Wisconsin. At Pomfret, Connecticut, the past November was the warmest in eleven years. At Newark, New Jersey, during the preceding twenty years, only five Novembers were colder, and none since 1843, and all except three had a lower minimum. At Providence, Rhode Island, the temperature was three degrees and one-tenth above the average of thirty-two years.

Table showing the average temperature and fall of rain (in inches and tenths) for the month of November, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1863.	
		Mean, ther.		Mean, rain.		Mean, ther.		Mean, rain.		Mean, ther.		Mean, ther.		Mean, ther.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	6	37.1	4.95	35.1	3.10	37.1	3.29	30.7	2.07	35.5	4.68	35.1	3.62	39.4	6.35
New Hampshire	4	36.4	3.68	34.5	2.60	37.5	2.01	28.1	3.04	36.4	3.14	34.6	2.89	35.9	2.45
Vermont	5	34.6	1.28	33.2	2.28	35.7	2.24	30.2	2.88	35.8	3.17	33.9	2.37	38.1	2.51
Massachusetts	12	39.5	4.30	38.5	2.97	40.6	2.05	35.3	2.56	41.3	2.92	39.1	2.96	42.8	5.19
Rhode Island	1	42.0	3.75	39.4	2.00	42.3	2.40	37.2	2.40	43.3	2.27	40.9	2.56	43.3	7.51
Connecticut	5	42.6	3.34	40.7	3.49	40.7	3.01	35.5	3.17	41.7	2.61	40.3	3.12	43.1	5.30
New York	18	39.8	1.98	38.9	2.35	38.2	3.18	36.0	4.18	41.4	2.92	38.9	2.92	42.0	3.55
New Jersey	4	44.7	2.66	42.3	4.01	42.3	1.39	38.7	4.34	45.3	3.74	42.7	3.22	44.1	2.68
Pennsylvania	20	44.3	3.01	40.5	2.54	39.7	1.93	38.4	1.33	43.2	2.42	41.2	2.26	43.6	3.62
Maryland	5	46.5	1.49	43.9	2.33	42.9	1.47	40.3	3.79	45.7	1.65	43.8	2.14	46.6	2.67
District of Columbia	1	48.3	1.12	44.0	2.14	42.3	1.34	41.5	4.19	48.1	1.89	44.8	2.14	47.0	1.73
Kentucky	4	51.4	3.62	43.5	4.06	42.2	2.78	39.9	2.57	48.8	3.01	45.1	3.21	45.7	3.14
Ohio	21	45.4	5.23	40.1	3.02	36.1	5.70	36.9	3.85	44.0	4.52	40.5	4.46	42.4	3.21
Michigan	8	39.8	5.24	34.5	3.14	31.7	2.91	35.4	3.73	38.3	3.83	35.9	3.77	38.3	1.89
Indiana	5	46.2	3.65	40.9	2.98	38.9	5.81	38.8	3.20	45.7	4.15	42.1	3.96	41.3	3.61
Illinois	14	41.8	2.81	35.0	3.62	33.0	2.67	34.8	3.76	40.8	2.90	37.1	3.16	38.7	1.35
Missouri	3	47.1	5.16	46.2	4.64	39.1	5.22	37.6	4.92	46.8	5.41	43.4	5.07	40.1	1.26
Wisconsin	10	36.7	2.14	33.7	3.67	29.5	1.63	35.5	2.93	36.4	2.92	38.0	2.66	35.4	4.00
Iowa	8	36.1	3.09	33.5	3.51	30.7	3.53	31.3	3.74	38.7	1.98	34.0	5.17	34.8	2.89
Minnesota	3	33.1	1.37	25.3	1.40	25.2	2.58	26.8	1.26	30.0	2.03	28.1	1.73	30.5	0.25
Nebraska Territory	3	.....	.....	.....	.....	32.1	1.75	31.0	0.59	37.3	1.24	33.4	1.19	39.3	2.00
Kansas	3	.....	.....	.....	.....	35.5	3.61	34.3	2.19	45.0	0.74	38.3	2.18	40.6	1.86
California	3	.....	0.00	52.2	0.65	51.8	2.31	55.5	0.40	53.5	9.03	54.9	2.48	.....	.....

AUTUMN.

The following table shows the mean temperature and amount of rain for the months of September, October, and November for a period of five years, and also for the year 1863, as deduced from the tables published in these reports :

Temperature and rain of Autumn.

	TEMPERATURE.		RAIN.	
	Average of 5 years.	1863.	Average of 5 years.	1863.
Maine.....	46.4	47.8	11.6	14.77
New Hampshire.....	45.9	45.7	11.3	8.53
Vermont.....	45.7	48.0	9.9	9.79
Massachusetts.....	50.3	51.2	10.5	10.70
Rhode Island.....	51.1	50.8	8.3	12.22
Connecticut.....	50.9	50.6	10.5	11.86
New York.....	49.3	49.3	9.5	9.28
New Jersey.....	53.2	52.7	9.5	8.50
Pennsylvania.....	52.4	52.2	8.3	11.10
Maryland.....	54.6	54.4	9.7	.....
District of Columbia.....	55.8	54.8	7.6	9.84
Kentucky.....	56.3	.....	8.3	.....
Ohio.....	52.3	50.8	10.3	8.57
Michigan.....	48.3	46.8	10.2	6.21
Indiana.....	53.9	50.9	9.6	9.36
Illinois.....	51.5	48.8	7.7	8.21
Missouri.....	57.4	52.2	12.0	7.99
Wisconsin.....	48.5	45.6	9.1	8.02
Iowa.....	49.3	46.6	11.9	10.20
Minnesota.....	43.5	42.9	6.8	3.49
Nebraska.....	51.7	48.2	7.3	4.50
Kansas.....	54.3	54.1	8.0	3.80
California.....	61.5	.....	3.4	.....

AURORAS.

Nov. 1.—North Littleton, New Hampshire. Auroral display, with clouds in the north.

Rochester, New York. A moderate aurora this evening.

Nov. 2.—New York city. A roseate blush, 3 to 5 a. m.

Nov. 4.—Steuben, Maine. Aurora, class 1, 3, and 6, considerably bright.

Lisbon, Maine. Aurora north to northwest, 8 to 10 p. m. quite brilliant.

Williamsburg, Maine. Commenced at 9 p. m.

Littleton, New Hampshire. Rather dim, 7½ p. m.

North Littleton, New Hampshire. Diffused light, defined by an arch below, dark clouds accompanying; brightness moderate; general appearance at 9 p. m.

Brandon, Vermont. Pale diffused light in the north, partially in bands. At 8 p. m. nearly sixty degrees above the horizon.

Westfield, Massachusetts. Aurora in the evening.

New Bedford, Massachusetts. Aurora.

Providence, Rhode Island. Aurora in the evening, low down in the north, and not very bright.

Newcastle, Indiana. A faint aurora, reaching about one-fourth the distance from the horizon to the north star, form indefinite.

Rockville, Indiana. Faint aurora in the north at 8½ p. m.

Canton, Missouri. Aurora at 9 p. m.

Dubuque, Iowa. Aurora at 9 p. m.; no streamers.

Pleasant Plain, Iowa. Small aurora about 8 p. m.; arch; no streamers.

Nov. 5.—Cornishville, Maine. Northern lights from 8 to 9 p. m.

Forest City, Minnesota. Northern lights.

Nov. 9.—South Hartford, New York. Glow in the north, no arch.

Nov. 12.—South Hartford, New York. Glow in the north, no arch.

Nov. 14.—Dubuque, Iowa. Aurora at 9 p. m.; no streamers.

Pleasant Plain, Iowa. Small aurora at 9 p. m.; arch; no streamers.

Fontenelle, Nebraska. Aurora 9 to 11 p. m.; no cloud below the arch.

Nov. 16.—Iowa Falls, Iowa. Very brilliant for a few moments, at 9 p. m. Shot up in bright streaks and faded away; then returned and rose about ten degrees, and all vanished at once.

Nov. 29.—New Bedford, Massachusetts. Aurora.

Nov. 30.—Lisbon, Maine. North to northeast, not very brilliant.

Steuben, Maine. Aurora, class 2, about half way up to the north star.

West Waterville, Maine. Aurora.

North Littleton, New Hampshire. Very light at 8 p. m., with clouds in the north.

Littleton, New Hampshire. Low in the north; quite dim.

Sandwich, Massachusetts. 6 to 7; no definite form. A few rays from the north between 9 and 10 p. m.

South Hartford, New York. Glow in the north; brilliant; no arch.

Newcastle, Indiana. 9 p. m. very faint, extending upward about 4 degrees.

Independence, Iowa. Faint luminous arch 9 p. m., color white, lower edge not well defined.

LIGHTNING.

Nov. 2.—Kingston, Ohio. A little lightning this evening.

Nov. 3.—Muscatine, Iowa. Rain and thunder in the afternoon and evening.

Nov. 4.—Newcastle, Indiana. Diffuse lightning from 8 to 8½ p. m. in the far northwest; scarcely any appearance of clouds.

Winnebago, Illinois. Moderate rain set in at 6 a. m. and continued through the forenoon; heavy interrupted rain through the afternoon and evening, and occasional distant thunder. The wind changed to southwest at 9 p. m.; to west, (force 6 to 7,) about midnight.

Pekin, Illinois. 6.40 to 9 p. m., slight fine rain; 6 to 6½ p. m., frequent diffuse lightning, followed by a few rolls of thunder in the west.

Rockville, Indiana. Distant diffuse lightning at 8 p. m. at the northwest.

Canton, Missouri. Thunder storm 5 to 6½ p. m., and 10½ to 11 p. m. at the southwest.

Harrisonville, Missouri. Some distant zigzag lightning west at 2½ a. m. Distant thunder southwest about the same time. Distant thunder southwest at 3 p. m. Distant diffuse lightning southeast at 7 p. m., and still continued at 9 p. m.

Fort Madison, Iowa. Heavy thunder and vivid zigzag lightning and heavy rain at 5½ a. m. Sudden rise of thermometer ten degrees at 5 p. m.

Manhattan, Kansas. Thunder and diffuse lightning at 9 p. m. in the north, east, south, and west.

Lyons, Iowa. Rained continuously all day till 4 p. m.; wind south; lightning in west and northwest, also in southeast. At 8 p. m. the thermometer went up ten degrees, (to 61,) and there came a warm summer shower, with thunder, passing off to the east, leaving it all clear at 9 p. m.

Muscatine, Iowa. Thunder shower from 5 to 8 p. m.

Nov. 5.—Pittsburg, Pennsylvania. Gale in the morning, warm and sultry. At 6 p. m. a small shower. Thunder storm in the southwest.

Manhattan, Kansas. Diffuse lightning in the south from 8½ to 9 p. m.

Welshfield, Ohio. Some thunder and lightning this night.

Nov. 13.—Augusta, Illinois. Rain from 5¼ to 6 p. m. Lightning at 6½ p. m. from southwest and southeast, but no cloud to be seen. Clouded over soon after 8 p. m.

Winnebago, Illinois. Occasional sprinkle through the early evening. Moderate rain set in at 8 p. m., with frequent lightning and distant thunder at long intervals. The rain continued with occasional interruptions through the night.

Pekin, Illinois. 9 p. m., frequent diffuse lightning in north since 7 p. m. There are no clouds visible, but a large quantity of smoke in the atmosphere.

Lyons, Iowa. Rain, with thunder at 7 a. m.

Muscatine, Iowa. Thunder shower from 6 to 8 p. m.

Nov. 14.—Sykesville, Maryland. Gust at 7½ to 8 p. m., with thunder and lightning.

Nov. 15.—Washington, D. C. Sharp lightning and heavy thunder at 7½ a. m.

Harrisburg, Pennsylvania. Thunder at 7½ p. m.

Nov. 18.—Manhattan, Kansas. Diffuse lightning in the north at 8 p. m.

Nov. 28.—Beaufort, South Carolina. Thunder storm quite heavy from 3 p. m. till 9 p. m. The morning of the day was so damp that the water trickled down the walls of unoccupied rooms.

METEORS.

As mentioned in the last report, extensive arrangements were made by the Connecticut Academy of Sciences to obtain full and accurate records of such meteors as might appear on the nights of the 13th and 14th of November, and their circular and chart were sent to a number of our observers, many of whom were ready to co-operate, but the general cloudiness on that night proved unfavorable for observation.

Dr. Metcalf, the observer at Mendon, Massachusetts, had arranged with an assistant to observe what might be seen in the constellation Cassiopea, but the night was cloudy and no meteors were seen. Mr. Cutting, at Lunenburg, Ver-

mont, who writes that the night was cloudy, also adds that he noticed no more. meteors during the month than usual.

Mr. Robert Brown, jr., of Cincinnati, whose preparations with a corps of observers at the west were also alluded to in the last report, writes to us as follows: "Reports are coming in of the meteoric observations, from the different stations. Success various. Here we were unfortunate. The 13th and 14th was entirely overcast and stormy, as well as the 14th and 15th. But few courses are charted here. We were well prepared for the night of the 13th and 14th, and disappointed. 11th and 12th one-third obscured, about fifty-seven; 12th, one hundred."

We give below notes of all the meteors during the month recorded on the registers which have been thus far received from our observers.

Nov. 1.—Portsmouth, Ohio. Observed a very large meteor on the night of the 1st, course S. W. to N. E. Observed fifty shooting stars between the 1st and 15th, eleven in one hour on the night of the 3d.

Nov. 7.—Newcastle, Indiana. Observed two shooting stars, the first from Orion to S. W., one-fourth the distance to the horizon, when it disappeared; and the other just north of Orion to N. E., one-eighth of the distance to the horizon.

Nov. 9.—Iowa Falls, Iowa. Five minutes before 9 p. m. a shooting star started overhead, and shot to the west about forty degrees, with a tail ten degrees in length and very bright. At half past 9 saw three shooting stars; they were small and all had the same course.

Algona, Iowa.—Shooting star, starting in the north and passing south.

Nov. 10.—Algona, Iowa. Shooting star, starting in the north and passing south, very bright; another small one at the same time, starting and ending same.

Nov. 11.—New Albany, Indiana. Some observations on the meteors of November were made on the nights of the 11th and 12th. The observations were made in the earlier part of the night. The night of November 13 was cloudy, and no observations could be made. A full report of these observations will be sent, with the constellations, as far as could well be determined, in which the meteors were seen. On the night of the 11th fourteen meteors were observed between the hours of 10 and 11; twenty-six between 11 and 12; and twenty-three between 12 and 1. On the night of the 12th, seven were observed between 10 and 11, and twelve between 11 and 12. Total on the nights of the 11th and 12th, 82.

Nov. 12.—Progress, New Jersey. At eight minutes after 5 a. m., noticed a large and brilliant meteor. At the time of disappearance it was due south, its course northwest to southeast. When first seen it was apparently at an altitude of thirty degrees; disappeared at fifteen degrees.

Nov. 13.—Progress, New Jersey. At 4 a. m., noticed a meteor, course from east to west. From 5 a. m. to daylight saw four others, none of them remarkable for brilliancy.

Nov. 14.—Dubuque, Iowa. No meteors observed this evening. The hour between 8 and 9 was spent in watching for them. Last evening the sky was entirely obscured by clouds, so that none could be seen if present.

Nov. 14.—Pleasant Plain, Iowa. A very bright meteor appeared in the region of the Pole Star about 7 p. m., so bright that for the instant the shadow of a house near by was plainly discernible. The course was about east.

Nov. 16.—About 7 p. m. a very bright meteor was seen through the window of a lighted church, descending in the north, to the east of a perpendicular line.

PRAIRIE FIRES.

Nov. 7.—Fort Riley, Kansas. Prairie fire on the bluffs just north of the garrison.

Nov. 8.—Iowa Falls, Iowa. From 2 to 4 p. m. the prairie was on fire to the west, and the smoke after rising about ten degrees presented the appearance of white bunch clouds, and passed off to the east.

FLIGHT OF BIRDS.

Nov. 3.—Iowa Falls. A great many geese and brants have passed over towards the south in the past few days.

Nov. 25.—In the evening a large flock of geese and ducks flying north. They have been more plenty this fall than in former years.

FRESHET.

Lisbon, Maine.—Saturday, the 14th, there was a very heavy mist all day. It commenced raining Sunday morning, 15th, and continued with but slight intermission until Wednesday, 18th, 7 a. m.; amount of rain during that time 6.7 inches, causing the heaviest freshet known about here for fifteen, and some say thirty years. On Thursday, the 19th, at 10 a. m., the Androscoggin river, near the mouth of Sabatti's stream, was thirteen inches higher than at any time since 1847. It was estimated to have risen fifteen feet in forty-eight hours. Many bridges were carried away on the Grand Trunk and Androscoggin railroads.

BI-MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

JANUARY AND FEBRUARY,

1864.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1864.

DEPARTMENT OF AGRICULTURE,

Washington, February, 1864.

In presenting the following report to the farmers of the country, the Commissioner of Agriculture feels assured that it will receive from them no less approbation than they have so kindly bestowed on his former reports. Their appreciation of his course is his best reward, and for the many expressions of their approval he returns his warmest acknowledgments.

ISAAC NEWTON,

Commissioner.

AGRICULTURAL COLLEGES.

This Department has received various letters asking its views relative to the best system of instruction for the agricultural colleges to be established under the act of Congress of July 2, 1862, donating public lands to the several States and Territories to provide colleges for the benefit of agricultural and mechanic arts. As Congress had in view the establishment of at least one college in each of the States and Territories, and as the experience of the United States in such institutions has not been either extensive or successful, it is highly necessary that public sentiment should be awakened, that by enlightened action success may be obtained. This public sentiment cannot be acted on, in this matter, more speedily than through this Department, and hence it now complies with the request in these letters; not expecting to control this public sentiment, but simply to aid in its development, and to be the means of uniting its action.

But there are other reasons why the Department must ever be deeply interested in the successful establishment of these colleges. Some of them are the following:

1. The Department needs much the aid it would derive from these colleges. They will have experimental gardens and farms, skilful professors to properly conduct experiments, to carefully note them, and to properly report them. Hence, when the Department imports new seeds and plants, it can, through their aid, at once determine their adaptability to this country, and the climate, soil, and cultivation proper to each. The distribution of seeds, cuttings, &c., could then be made on a most economical basis, because they would be distributed only where they could be advantageously grown. Seeds, when thus tested, could be grown by these institutions, and thus a large sum of money now sent abroad would be distributed at home.

2. From these colleges would be received reports of the experiments made, and these would be placed before the farming public through the reports of the Department, and thus, with the seeds and cuttings distributed, would be communicated the mode of cultivation adapted to each.

3. A great object with this Department must be to systematize the agriculture of the United States; and how can this be so well done, over a country so extensive, and of such diversified latitudes and products, as by the aid of local institutions, under the direction of high intelligence, and aided by the special agencies which will be found in them?

4. To render most practicable and useful such systematized farming, the aid of institutions having local influence will be essential, as instructors of

leading farmers, and to obtain such State legislation as may, from time to time, become necessary to a more speedy advancement.

These reasons, without stating others, are sufficient to show how deep an interest this Department must ever take in the proper establishment of these industrial colleges.

In considering such establishment, the first inquiry to be made is, *What course of instruction should be adopted by them?*

There are no settled opinions, in answer to this question, to be found in the United States. So far as they have been expressed in the course of study in our few agricultural schools, and in the writings of those who have sought to mould public opinion, the instruction proposed has contemplated a preparation for the farm only. The languages have generally been regarded as useless, and the course of mathematical studies has been too limited. In this, we think, lies the failure of our agricultural colleges. Such limitation may be adapted to European affairs, where the son seeks to continue in the father's occupation. But here the farmer's son is no more destined to agricultural pursuits than the son of a professional man. Here the merchant longs to be released from the distracting cares of commercial pursuits, and the opulent manufacturer from the dangers of changing markets. Both anxiously desire the rest and enjoyment found in the country life. And with them in this wish is the professional man and the politician. And it is a natural desire; it is a part of man's nature, as it was in conformity with it that God placed our first parents in the garden of Eden; or, that the homes of illustrious Americans have become a part of their fame, as Mount Vernon, Monticello, Ashland, and Marshfield. And this desire would be a hundred fold strengthened if early education fitted all for an intelligent pursuit of agriculture, as well as other occupations of civilized life. A system of education, to be successful, must be in conformity to the tastes and pursuits of a people. The time is not yet come in the United States when the son will inherit the father's occupation. Nor is it desirable that it ever should be so. The eminent success of Americans in all the pursuits of life; the intellectual and physical energy they have displayed in them; the facility with which this intellect takes hold of the most diverse pursuits—all point to a condition so different, both mentally and socially, from the countries of Europe, that its agricultural schools furnish but an imperfect basis upon which to rear our own. We must mark out a path for ourselves.

Congress, in the act referred to, seems to have been governed by this American condition of things. Its provisions are broad and liberal. It recites that in the colleges to be established "the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

It will be seen from this that these colleges are not to be agricultural only. The education of the mechanic, manufacturer, merchant, and miner, is demanded,

as well as of the tiller of the soil. *All* the industrial classes are to be fitted for an intelligent career in the several pursuits of life. Anything less broad would not have been equal justice to all. It requires, too, military instruction—that the citizen may be qualified for duties the discharge of which is now demanded of so many—and it does not exclude “other scientific and classical studies.”

The American youth have a broad career before them. Neither the farm, nor the workshop, nor a subdivided labor in either is to be the bound of their emulation or labor. The son of the farmer must be permitted to obey the promptings within him, and, like Mr. Webster, to hang the scythe on the tree, or, like Mr. Clay, to ride to the highest political stations, as well as on the horse's back to mill. Like Washington, he should be fitted for the chain and the compass, or the camp, or political rule, or the management of a landed estate.

It may be answered in the senseless aphorism that a “Jack of all trades is master of none.” The career of Henry Ward Beecher furnishes a reply. He lately told us, when in England, that he was bell-ringer, too, in his first church. When at Indianapolis he published an agricultural paper; and, during the past summer, the *Journal* of that city, alluding to the admiration of strangers for the beauty of its gardens and yards, ornamented with flowers, and evergreens, and shrubs, gave all the credit to Mr. Beecher's teachings when there. He left in the west “the Beecher rhubarb”—a seedling variety, originated by him, not inferior to any other—and he reformed the butter market of that city. And he did these things whilst he was the first of its preachers. His recent political speeches in England exhibit his power in another field.

Another case, showing the superiority of a general education of the faculties of the mind over the disciplining of a few only, is seen in an eminent American manufacturer and inventor. In exhibiting in England one of his inventions he had the work mostly done there, but made slow progress in completing it. Writing home, he said that in English shops the workmen are trained to such subdivisions of labor that one of them can do the work of only one part of an engine; that one part must be done before another workman can do his part; that few of them can superintend the entire work of an engine; whilst in his own manufactory here most of his workmen were competent to do this.” And to this subdivision he attributes the want of inventive talent in England.

Apart, then, from pre-eminent ability, we see that both in education and labor, a development of mental power is promoted by a general discipline of all the faculties of the mind, and that instruction dwarfed to a particular pursuit, results in a dwarfed mind itself; that the powers of the mind, like those of the body, achieve most when their fully developed strength is centred, for the time, on the accomplishment of a certain object. If our greatest minds have found this developed strength in liberal studies, lesser minds must be governed by the same law of progress. Confine their faculties to a narrow routine of study, and whilst a few faculties may be partially strengthened, others remain undeveloped.

In the agriculture of England and of the continent, we see the influence of limited instruction. A ploughman continues to be but a ploughman, and a

worker in the vineyard occupies the place filled by his grandfather's grandfather. Whatever of progress we find in England and Scotland, is to be attributed to a higher and broader development of mind. Turn to France, and in the following description of its agriculture in the south, we see the results of subdivided instruction. One of our most intelligent consuls thus writes:

"I received the request from the Agricultural department to furnish it statistics. I know not what to do. I, who have always so loved agricultural and horticultural pursuits, would certainly be expected to do much in this line. But when I look around, I find absolutely nothing in all France to interest our country in that line. So far is France behind us in all labor-saving machinery, in everything relating to agriculture, or the mechanic arts even, that I know it is the wrong place to seek light. Many things are unearthed at Pompeii and Herculaneum that are much in advance of anything in France. The ploughs are of the style of the ancient Egyptians—a forked tree. Their carts and wagons of the farm are four times the size of our own—awkward and clumsy affairs you might worship and not break the second commandment, for they are the likeness of nothing on earth. The peasants drive in a single hog to market as in Ireland, and everything else is in the same piddling, picayune style. Is this the style to be imitated by our own large-minded, great-souled, enlightened, free-born Americans? Not by my aid or consent.

"This district, and the whole south of France from here to Nice, on the Italian border, is a land mostly of grapes; the eastern half of olives also; a poor, miserable character of farming, which we should leave, I think, after looking over the whole ground, to the small-minded, small farmers of Europe. Or when we do go at grape-raising, as we will largely in California, let us go at it in our own grand style, as we raise hogs, corn, wheat, &c., &c.; no piddling or scratching like this."

Here we have graphically described the difference between the enlarged American agricultural mind, and the dwarfed European agricultural mind. Our agriculture presented a scope that demanded thought; it was vast in itself, and by its own greatness raised up the farmers of our country to the higher standard we find in the foregoing contrast. But as population becomes more dense, there will be a tendency to European division of labor and its narrow views. This must be counteracted by liberal education. Grand as have been the achievements of American agriculture, it has been aided by a natural richness of the soil, which must be replaced and sustained by the riches of science.

But the American farmer and artisan have not yet achieved their greatest elevation, either in their occupations or in their positions as American citizens. Look into the army and at the civil offices. A stranger to our institutions might readily suppose that the profession of law constituted a privileged class in this country, and that no one outside of its ranks could hold a civil or military official position. Is this just to the industrial classes? Or is it safe to the government? The mission of these classes is not one of toil merely, but of equal position as citizens. The skilful artisan, the comprehensive farmer, the far-seeing

merchant, the enterprising manufacturer, should be competent, when occasion demands, to be an officer in the army, or a statesman at home, or a minister abroad.

Our agricultural colleges have heretofore failed because they aimed to educate for the pursuit of agriculture only. The sons of our farmers are not less ambitious of distinction than others, and an education that regards them as farmers only, cannot meet their approbation. The purpose of an education is to teach men to observe and to think—these are alike essential to all pursuits, and in these operations of the mind all the faculties are called in requisition. A skilful and correct use of their power is the boon of instruction. Their general development is first to be accomplished, and subsequently this developed power is to be applied to particular pursuits. A course of instruction regarded merely as information is not less necessary to one pursuit than another, for a mere farmer, or mechanic, is not less to be discountenanced than a mere lawyer. General science and knowledge is as essential, and is as becoming, to the one as the other. All pursuits, then, may have a common course of instruction.

From these general remarks, rendered necessary by prevailing erroneous opinions respecting the instruction suitable to the industrial classes, we return to the question asked, that it may now be answered specifically—*what course of instruction should be adopted in our industrial colleges?*

1. *Languages.*—Besides the considerations just advanced, a knowledge of the English language, to express his thoughts, either in writing or speaking, clearly, forcibly, and elegantly, is as important to one engaged in an industrial pursuit as in a professional. In early years, as twelve to sixteen, a youth cannot make more progress in learning it, than by the study of the Latin language. It is a language that has added much to our own. Its study familiarizes the pupil with English words and their meanings, and their use to express ideas both correctly and elegantly. The study of the Latin grammar instructs him in the English grammar. And the knowledge of Latin is absolutely essential, if he would better understand and more readily remember the numerous words derived from this language used in works on the natural sciences.

The German language is used so extensively in the business transactions of many parts of the United States, that opportunity to acquire it should be given in these colleges. It need not, however, be made an essential part of the regular course of study.

2. *The Mathematics.*—The study of mechanical laws is directly connected with the mechanical and manufacturing arts. So far as mathematics is essential to their understanding, to disciplining the mind, and a thorough knowledge of natural sciences, they should be made a part of the course of study.

3. Of the other branches of study, we cannot do better than to adopt the following, transmitted to the Department by Richard Owen, a brother of Robert Dale Owen, and of the late David Dale Owen, a name familiar to every intelligent citizen on account of his eminent attainments in science, and his practical application of them in geological and mineralogical surveys. Mr. Richard

Owen is now a professor in the State University of Indiana, at Bloomington, and is not less thorough in his scientific acquirements. He has received a military education also, and until recently commanded a division of the Indiana troops.

A course of study, although briefly laid down by one who is as practical as learned, cannot but receive the careful consideration of all.

Mr. Owen, in his letter, says :

“ I hasten now to furnish, as you request, an outline of the plan of study which I think might be advantageously adopted, throwing out other hints which can receive consideration, provided the means are sufficient and the public mind prepared.

“ Finding the great advantage of addressing all instruction, as far as practicable, to the eye, (in addition to that given through the medium of the ear,) I would recommend a Museum, (besides the lecture-room, each having its own appropriate specimens and diagrams,) to contain—

“ 1. All the most important minerals, arranged according to Dana’s text-book.

“ 2. The necessary rocks and fossils, to illustrate pretty thoroughly each geological period.

“ 3. A suite of plants, arranged according to the natural orders.

“ 4. Specimens of all the most important seed vessels (chiefly fruits) and seeds, (grains, grapes, &c.)

“ 5. A zoological department, exhibiting the most important animals from the sponge and polyp, up through the star fishes and sea-eggs, worms, crustaceans, and insects, (particularly those injurious to agriculture,) mollusks, fishes, reptiles, birds and mammals, (including the skeletons of all the domestic animals,) to end with man.

“ 6. Numerous charts, exhibiting streams of time, chemical tables, geological sections, maps of physical geography, giving meteorology, distribution of plants, animals, rain, &c.

“ 7. A good set of philosophical instruments to illustrate the department of natural philosophy and land surveying, such as the air-pump, electrical machine, mechanical powers, rain-gauge, barometers, thermometers, hygrometers, hydrometers, microscopes, sextant with horizon, &c.

“ 8. Models of machinery, as grist-mills, saw-mills, paper-mills, cotton machinery and the like. Also improved agricultural implements of every description, and models of barns, bridges, grain-houses, &c.

[“ N. B.—This museum should be open to the agricultural and normal institutions.]

“ INSTRUCTION.

“ 1. For *physical* development, gymnastics, agricultural operations in suitable weather, at least for a part of the classes, (the others taking the succeeding day,) as ploughing, digging, mowing, sowing, &c.

“ 2. For *moral* culture, religious instruction, moral philosophy, music, (espe-

cially vocal in parts,) social gatherings or re-unions, at least for some classes, each week, when they should meet the professors and their families, having some object to bring them together, such as microscopic examinations, or the magic lantern, music, or portfolios of engravings, &c., to examine.

"3. For *mental* improvement, supposing the elementary branches mastered; then drawing, land surveying, geography, bookkeeping, human anatomy, physiology and hygiene, comparative anatomy and physiology, vegetable physiology, chemistry, mineralogy and geology, botany and zoology, lectures on gardening, pruning, fruit-raising, wine-making, &c; agricultural chemistry, embracing lectures on manures, improving worn-out lands, drainage, &c.; lectures on stock-raising and farriery.

"THE NORMAL SCHOOL.

"In this a great object should be, not so much to convey any particular information of subjects to be taught, as to discipline the would-be teachers in the best method of imparting instruction in any branch or department.

"Instruction how to convey information to the youthful mind might be given on the following points:

"1. Lessons on things (objects surrounding us) of every day occurrence.

"2. Petalozzi's system of arithmetic, (mental.)

"3. Writing on blackboard, before using either slate or paper, to give freedom to the hand.

"4. The elements of drawing and practice in estimating distances, areas, &c.

"5. Proper mode of teaching vocal music with metronome, tuning-forks, &c.

"(These last three comprise improvement of the hand, eye, and ear—consequently the development of three senses; the taste and sense of smell do not require much cultivation.)

"6. Making each would-be teacher lecture alternately on some of the subjects under discussion, so as to practice the imparting of instruction, the professor criticising, if necessary, his style, mode of handling the subject, &c.

"N. B.—If female teachers are to be received and instructed, there should be a model kitchen for the instruction of young ladies in the proper mode of preparing wholesome food, such as household bread, and of *knowing*, not guessing, when things are sufficiently cooked; also, how to cook without the wasteful and unwholesome use of so much lard, and the advantages of boiling instead of frying constantly in grease, &c.

"MODEL FARM.

"Connected with the agricultural college there should, of course, be a model farm, and the best of stock, implements, &c.; also a model garden and greenhouse. Connected with the normal institution there ought to be a model school-house and appurtenances, and, as above suggested, a model kitchen.

"MILITARY TRAINING.

"Perhaps by carrying out the West Point system of training, as far as consistent with study, work, &c., the necessity of a gymnasium might not be so

great as in ordinary schools and colleges, where it ought undoubtedly always to be introduced under proper instruction.

"The above may serve to convey to some extent the plan which had been in my head for some time, but which had never assumed quite a definite form for want of knowing the exact circumstances under which such a plan could be worked out, and many details would of course depend upon that. For instance, Congress may, in the grant, perhaps, prescribe a certain course; the State, in accepting, may prescribe. The community, in sending, may demand certain things, but the above may, perhaps, at least serve for a basis on which any one, knowing the circumstances, can work out the superstructure."

AN EVIL AND ITS REMEDY.

This admirable course of study thus briefly sketched by Professor Owen needs no comment; it sufficiently recommends itself. But it demands what few of our collegiate institutions have—that museum, apparatus, &c., which aid so greatly the acquisition of knowledge by presenting through the senses clear ideas to the mind.

Why our institutions are deficient in these is obvious enough when we look at their too great number. The educational means of the community have been expended in building edifices, to the great detriment of thorough instruction by the help of those agencies referred to by Mr. Owen. Each State has its dozen of colleges; and the apparatus, museum, library, &c., of all, would be insufficient for one. *Are these industrial colleges to be virtually destroyed by a like waste of means?*

What are these means? The act of Congress gives to each State a quantity of land equal to 30,000 acres for each senator and representative in Congress. A State that has unsold lands within its own borders may locate this grant; but those that have not are to receive land scrip, which cannot be located by the State, but only by the assignees of the State, at \$1.25 per acre. When we reflect that the homestead law gives away the public lands to actual settlers, and that no large bodies of good public farming lands remain for entry, it is pretty clear that the fund from the grant to the older States will be slowly realized, and then only at a great sacrifice. The law ought to be so amended as to allow immediate location by all of the States. *Must the industrial classes wait for this slow realization of the fund before colleges, so important to them, can be established; and must they be limited to an inadequate course of instruction, by reason of insufficiency of the fund?* No! Kansas has so answered, and its admirable precedent should be followed by all other States like situated. No! Connecticut replies by bestowing its grant of lands upon Yale College. The one answers for the west, the other for the east.

The new States of the west and southwest have had donations granted them by Congress for the establishment of universities or seminaries of learning. Among these is Kansas, and wisely determining to consolidate, and not dissipate, its college funds, it has consolidated the grant for both, merging the first one into the second, thus saving a useless expense in building two edifices when

one is all-sufficient, in having two sets of professors when only one is required, and by this economy securing a museum, apparatus, library, &c., so necessary for the proper instruction of all occupations, whether professional or industrial.

Under like grants we have the following universities: Ohio, at Athens; Indiana, at Bloomington; Illinois, at Springfield; Missouri, at Columbia; Wisconsin, at Madison; Iowa, at Iowa City; Michigan, at Ann Arbor. Since these universities were established many others have been, in these and other States, mostly by religious denominations, in which is usually found such course of instruction as is adapted to professional pursuits; but not to the industrial, for want of the museum, apparatus, library, model farm, &c., mentioned by Mr. Owen. Why retain these State universities as competitors of these private colleges? Why not render them efficient, economical, more truly State institutions, by consolidating the grants, and thus creating a college competent to the thorough education of all occupations? The sound policy of such union is the more obvious when it is remembered that the last act does not allow any of the fund created by it to be used in buildings. The former grants have provided these and a skeleton library and apparatus, with a fund competent only to sustain a faculty inadequate to such instruction as the wants of the age and of our condition demand. But all these would constitute a basis on which, as the funds from the recent grant were realized, colleges adapted to these wants could be built up.

These views are now placed before the public in compliance with the requests that have been made, and with the hope that they will lead others to express theirs.

ISAAC NEWTON,
Commissioner.

THE FUTURE OF AMERICAN COTTON AND WOOL.

It is the duty of this Department to examine the circumstances connected with the future condition of a crop, and lay these, with the opinions of the Commissioner, before the farming community, that it may determine its action in reference to the crop. This duty imposes great responsibility on the Department, but it is a *duty*, and, therefore, is to be discharged.

There is no agricultural question that has deeper interest than the one embraced in the heading of this article. The past idea was that American cotton could encounter no rivalry, and hence it was regarded as a king, with power to control the industry of the world, and to centre in the land of its growth the riches of that industry. To secure this imaginary wealth to the producer of our cotton, to the merchant engaged in its commerce, and to the politician who gave direction to the civil and political institutions resting on its production, became the Utopian dream which awoke the rebellion.

Among those most devoted to these views was De Bow, of the Southern Commercial Review, who gave to southern politicians the statistical matter on which they rested the policy of the rebellion. Upon the supposition that cotton could not be grown elsewhere, the power to coerce aid to the cause of their independence from European powers largely engaged in the manufacture of cotton was assumed, and upon this aid was predicated the success of the rebellion.

But the fact proved to be otherwise. The world soon found substitutes for American cotton, and with this truth before him Mr. De Bow saw the mistake of the rebellion. He therefore advised a return to that Union under which the south had grown so great and prosperous, and for this wise counsel the despotism of the rebellion has consigned him to a prison.

With the certainty of the overthrow of the rebellion, (we hope and believe during the coming summer,) the duty of this Department is to look forward, and determine the peace condition of our chief agricultural staples. At this time our remarks will be confined to the cotton and wool products; and the first matter to consider is—

The conditions of the growth of foreign cotton.

Before the rebellion, Great Britain had made every effort to grow cotton in its East India possessions. The following table shows with what success, and also the rapid production of it in India and other places since the rebellion. The first column exhibits the number of pounds imported by Great Britain; the others, the amount received from the United States, India, Egypt, Brazil and other countries, chiefly from China.

Imports of cotton into Great Britain.

Years.	Pounds.	From United States.	From India.	From Egypt.	From Brazil.	From other countries.
1858.....	1,034,342,176	780,952,389	.....	.....	.....	.....
1859.....	1,225,989,072	943,686,202	.....	.....	.....	.....
1860.....	1,390,938,752	1,264,236,782	.....	.....	.....	.....
1861.....	1,256,984,736	736,640,000	.....	.....	.....	.....
1862.....	523,973,296	13,524,224	392,654,528	65,238,320	23,339,008	29,216,216
1863.....	764,000,000	56,000,000	480,000,000	80,000,000	60,000,000	88,000,000
1864*.....	1,066,000,000	56,000,000	660,000,000	120,000,000	76,000,000	154,000,000

* The year 1863 is partly estimated; that of 1864 altogether so, but it is a medium estimate of several regarded as entitled to confidence.

This is a remarkable table. In 1860, we see that Great Britain imported 1,390,938,752 pounds, of which all was from the United States but 126,701,970 pounds. This was the result, after the effort of years, to grow cotton in India

and in other countries. Its dependence on American cotton did, indeed, seem to be absolute.

The amount received from this country in 1861 is given from the English returns, for the official reports here show but a small portion of it, for as the cotton States had seceded early in the year, and their ports were not blockaded, most of the cotton was exported without any account of it being rendered. But in 1862 British imports had fallen off more than one-half, and the exports from the United States reached the low amount of thirteen and a half millions. But in 1864 the estimated supply will reach 1,066,000,000 pounds, of which India will furnish 660,000,000 pounds. Examine the vast increase during the years 1862, 1863 and 1864, from India, Egypt, Brazil and China, and nowhere has the world witnessed such a revolution in the loss and gain of a single product as the above table exhibits. Is it any wonder that, in such facts as it presents, DeBow should have seen the foundation of the rebellion melt away, as the morning mists before a glowing sun; and that in a return to its duty and allegiance lay the only hope of the cotton-producing States?

But this is not all. The want of one textile fabric brought others into use, and in the increase of wool and flax is shown a capability of substitution for cotton that never was imagined by the leaders of the rebellion. The ability of the world to clothe itself is now seen to be such, that the annihilation of the cotton States by sinking into fathomless depths beneath the ocean, could not now incommode merely this productive capacity, for it is equal to every demand that can be made upon it.

Thus has been settled a great fact. It is great because it has determined a question which, as long as it was undecided, would have kept the Union in constant agitation. It is as important as great, for it will do as much to preserve the harmony of the restored Union as the power of the arms of the loyal States. It is one good, at least, that has grown out of the iniquity of the rebellion.

It is, then, one of the conditions of the growth of foreign cotton that it is competent to supply the place of American cotton.

Can it retain that place against it in times of peace?

The south must resume cotton cultivation. Its agriculture will return to this product, and this product must come in conflict with the cotton production we have just considered. It is easy to foresee the result of the contest. It is seen in the vain effort of Great Britain to produce India cotton in antagonism to ours before the war. The strength of that nation lies in its vast manufacturing power, and its weakness in its dependence on other nations for the raw material. Could it have been possible to have raised up a cotton production of its own, Great Britain would have done so, regardless of expense. It cannot protect the present cotton production of foreign nations by duties against ours, for that would give to our own energetic manufacturers the exclusive control of a better and cheaper raw material than that held by Great Britain, and with such an advantage they would undersell it. Add to this superiority—what will be done—that cotton production here will avail itself of the advantages of free labor, of small farms, and of intelligent superintendence by the owner of the soil; and it will rise from its present overthrow with increased strength; it will resume all its supremacy as the greatest textile fabric, but without the arrogant claims to royal prerogatives, for the politician and statistician will ever bear in remembrance the table we have given above.

But there is another reason why the United States must become the cotton producer for the world. Commerce is the interchange of the surplus products of different countries. No extensive or lasting trade can be kept up on any other condition. The United States is the greatest consuming nation in the world, because the condition of its masses is superior to that of any other nation. At present, regardless of the struggle in which we are engaged, it is unwisely too much so. The excess of importations proves this, and the articles

imported in excess are not those essential to life, but its dearest luxuries. And if with every patriotic motive to economy we thus recklessly consume, how will it be, and how has it been, in times of peace and high prosperity?

In exchange for cotton, the United States takes freely of the surplus products of those who buy from us. The nations now supplying Great Britain with cotton do not thus consume, and, as a consequence, it has to purchase it by the exportation of gold. This is the cause that now creates the high rates of interest in France and Great Britain, and the drain of our own gold. The East Indies, Egypt, Brazil, and China, are not consumers after our fashion. Nor could they become such merely by possessing the cotton trade, but must advance to our position in civilization, for it is the wants and luxuries of civilization that make consumers.

The following table shows the value of the cotton imported by Great Britain during the last three years :

1861.—From the United States	\$132, 741, 160	
From Brazil	2, 521, 855	
From Egypt	6, 225, 330	
From India	31, 165, 565	
From other countries	937, 830	
	<hr/>	\$173, 591, 740
1862.—From the United States	2, 496, 625	
From Brazil	6, 370, 315	
From Egypt	13, 566, 660	
From India	63, 161, 905	
From other countries	7, 828, 095	
	<hr/>	93, 420, 600
1863.—From the United States	2, 302, 290	
From Brazil	8, 446, 065	
From Egypt	32, 996, 465	
From India	110, 258, 560	
From other countries	34, 372, 445	
	<hr/>	188, 375, 825
	<hr/>	

These tables present a change of commerce that has no parallel. In 1861 the United States received $132\frac{3}{4}$ millions of dollars for its cotton; in 1862, but $2\frac{1}{2}$ millions. In 1861, India sold but 31 millions of dollars' worth of cotton, and in 1863, $110\frac{1}{4}$ millions. From Egypt was purchased $6\frac{1}{4}$ millions of dollars' worth in 1861, and in 1863, 33 millions. From other countries in 1861, \$937,830 worth, and in 1863, $34\frac{1}{2}$ millions. Our commercial relations with Great Britain make us a debtor to it; but now it must pay gold for cotton. Here, then, we have a second reason why foreign cotton cannot retain its place against ours. We will consider but one other.

It has been said that, under ordinary prices, foreign countries had vainly attempted the production of cotton. The following table will show the high prices which called forth the cotton production represented in the foregoing tables. This table shows the amount, in pounds, of cotton purchased by Great Britain, and the value of it in ten months of the following years:

Year.	Pounds.	Value.
1861	1, 131, 594, 576	\$173, 591, 740
1862	344, 520, 176	93, 420, 620
1863	473, 326, 224	188, 375, 825

Here we see that, in 1863, Great Britain paid \$14,784,085 more for one-fifth less than one-half the cotton purchased in 1861, when its principal supply was from the United States. What is the price at which cotton in India, Egypt, Brazil, and China, can be grown, has not yet been determined, but that it cannot be as low as in the United States is seen in the fact that, in peace, they could not compete with us.

In the greater excellence and cheapness of American cotton, and in the mutuality of our trade with the cotton manufacturing countries of Europe, we have the assurance of reaching that magnitude in cotton production which we attained before the rebellion. And so regarding the subject of its future, we see no cause why northern capital, and energy, and skill, may not successfully engage in its production, for the rebellion has invited them to the south.

What then will be the future of wool?

In view of the great increase in sheep, and their present high price, this question is now attracting much attention. Farmers know that this price cannot continue; but when will the decline come, and to what extent, are the points of difficulty.

Cotton, wool, and flax, are the chief fibrous material by which the world clothes itself. Cotton had reached its magnitude at the expense of the other two. In the United States, flax had been driven out of use even in the border settlements. Wool-growing was in a depressed condition, despite the active exertions of county and State agricultural associations to give it strength, and even the household manufactures were rapidly decreasing. So far as this depression resulted from the natural antagonism of cotton, to the same extent it should again be expected. The wool-grower must, therefore, keep his eye fixed not only on the amount of wool grown, but on that of cotton also; and when the pounds of the latter seeking the channels of commerce shall approach those before the war, he may consider this antagonism to be once more in active hostility to wool production.

But here we must not be misled, by the tables of cotton imports into England, into the belief that the cotton production of the world is approximating what it was before the rebellion. Whilst these imports in 1860 were 1,390,938,752 pounds, and in 1864 will be 1,066,000,000, yet the entire cotton production of commerce presents very different proportions. In 1859, according to the census returns, the United States produced 2,079,230,800 pounds. The usual imports into Great Britain from other nations than our own, taking the mean of the years 1858 and 1859 as a guide, are 267,846,328 pounds. The whole foreign commercial product of cotton can safely be placed at 300,000,000 pounds. This added to our crop of 1859, makes the supply of cotton before the rebellion to be 2,379,230,800 pounds. The imports into Great Britain in 1864 will not be equal to one half this amount, and it represents nearly all the cotton production of the world. Hence, until the rebellion is overcome, and one year's cotton crop is made here, the wool-grower may confidently expect remunerative prices for his crop.

What will be the extent of this remuneration?

That prices of wool will gradually decrease with the increase of textile fabrics is certain. But the degree of that decrease must be determined by the rapidity of the increase of the general wool crop and by that of cotton and flax.

The rate of increase of foreign wools may be seen in the importations of Great Britain, for it wants more wool than it receives, and draws its supplies from all nations. The imports of wool into Great Britain have been as follows:

1861.....	147, 172, 841 pounds.	
1862.....	171, 943, 472	"
1863.....	180, 000, 000	" Partly estimated.

The imports of 1862 were from the following countries :

Australia.....	71, 339, 842 pounds.
East India.....	17, 959, 404 “
South Africa.....	18, 930, 886 “
Spain.....	395, 699 “
Germany.....	8, 378, 329 “
Other European nations.....	34, 755, 393 “
South America.....	12, 663, 805 “
Other countries.....	7, 520, 114 “

Comparing, in the first of these tables, the year 1861 with 1863, we see the general wool imports increasing about thirty-three millions of pounds in two years.

The wool crop in the loyal States has been as follows :

1861.....	50, 819, 337 pounds.
1862.....	63, 524, 172 “
1863.....	79, 405, 215 “
1864.....	109, 241, 649 “

In 1864 is included in the estimate eight millions of pounds for California. Estimating the increase of foreign wool in the market at ten millions of pounds, the general increase from 1861 to 1864, inclusive, would be about one hundred and two millions of pounds.

Increase in flax.

To determine the future prices of wool, some consideration must be given to the increase in the quantity of flax, as it is one of the textile materials that helps to make up the cotton deficit. It is not easy to determine its increase, the only data as to the foreign being the imports into Great Britain. The following table shows the pounds of dressed and undressed flax imported during the first eleven months of the years 1862 and 1863 :

	1862.	1863.
From Russia (cwt.).....	1, 141, 067	872, 575
Holland (cwt.).....	113, 576	110, 808
Belgium (cwt.).....	137, 904	122, 172
Other countries (cwt.).....	237, 159	136, 532
Total (cwts.).....	1, 629, 706	1, 242, 087
Equal in pounds to.....	182, 527, 072	139, 113, 744

Here is a decrease where an increase should have been expected. The following exhibits the *value* of flax imported into Great Britain :

1858.....	\$15, 105, 000
1859.....	18, 845, 000
1860.....	19, 185, 000
1861.....	17, 115, 000
1862.....	26, 030, 000
1863.....	20, 300, 000.—One month estimated.

The decrease in 1863 may have been caused by the increased production of flax in Ireland. In 1862 there were 150,000 acres in flax in that country, and in 1863, 213,000 acres, an increase of 63,000 acres. These statistics do not point to any material increase of the flax product of 1862. Its increase over 1861 was nearly 50,000,000 pounds.

The flax product of the United States in 1860 was 3,778,843 pounds, a de-

crease over 100 per cent. from that of 1850. The increase, as shown by the monthly reports for July and September, is large, perhaps 100 per cent. This would raise the flax produced here to 7,557,686 pounds. The increased product of flax for Europe and America may be placed at 57,500,000 pounds.

General Summary.

A general summary of the foregoing statistics gives the following results :

Cotton production of 1860, (lbs.).....	2, 379, 230, 800
Cotton production of 1864, as shown by estimated imports of Great Britain, and 100,000,000 pounds consumed by the United States, as supposed, (lbs.).....	1, 166, 000, 000
Deficit of cotton in 1864, (lbs.).....	1, 213, 230, 800
From which deduct :	
Increased wool production, being, as estimated. 102, 000, 000	
Increased flax product, being, as estimated. 57, 500, 000	
	<hr/> 159, 500, 000
Deficit in 1864 of textile raw material, (lbs.).....	<hr/> 1, 054, 730, 800 <hr/>

After the restoration of peace, should it be this year, the cotton crop of the United States in 1865, and the increased product of the world, could not be greater than this deficit; so that an overproduction of textile material cannot occur prior to 1865. As long as the war continues this cannot occur for several years, from the increased cotton product of foreign nations and of our own, and their increase of wool and flax.

What should the farmer do as to increasing his flock of sheep in 1864?

Next summer and fall this practical question will present itself to every wool-grower. The high price of pork will create an active demand for mutton; and looking to the offers, then, for his sheep by the butcher and the prospective market for wool, he will ask, what shall he do?

The answer is furnished by the foregoing examination of the market for textile material. If peace is conquered next summer, wool will rapidly decline in 1865. The clip of that year will not command a price justifying his refusal to sell at least the older sheep. If the war must exist during the year 1865, with large armies in the field, he may safely continue the full increase of his flock. Wool has evidently reached its maximum price; but should the blessings of peace not be attained this year the prices will recede but slowly, and will continue to be remunerative until peace is achieved.

ISAAC NEWTON,
Commissioner

THE PROPOSED TAX ON TOBACCO LEAF.

In his letter of November 30, 1863, to the Secretary of the Treasury, Mr. J. J. Lewis, the Commissioner of Internal Revenue, recommends a tax on tobacco leaf of twenty cents per pound, without any drawback of this tax when the tobacco is exported. He makes this recommendation on the facts that our tobacco is heavily taxed by foreign nations, that their demand has been constantly increasing, whilst our domestic production has been greatly diminished by the war, and, therefore—such is his inference—this tax would not seriously affect the export trade of tobacco. In other words, he thinks that foreign gov-

ernments must have our tobacco, and will decrease their duties to the amount of our tax rather than their trade in this article should be impaired.

Regarding this opinion as founded in an erroneous view of the export trade of our tobacco, and believing that such an excise tax would virtually destroy the tobacco product of this country, my duty to the interests of agriculture demands that my own opinions should be placed before the public. More especially so, when letters are being constantly received in this department expressing apprehensions, and asking my views of the operation of the proposed taxation. What is the character of these apprehensions may be inferred from the following :

Mr. T. R. Allen, of Allenton, Missouri, in a letter of January 8, says: "The present high price of tobacco it is thought is as much as buyers for exportation can pay—fourteen cents at St. Louis, the largest tobacco market in the United States. Add to this twenty cents per pound, and what must the price be to remunerate the producer? Can we afford to grow the article? This is the query now in our minds. For myself, two years ago I commenced, or rather recommenced after a suspension of twenty years, on a small scale to grow tobacco. A small scale was necessary at first, because I was not prepared for it. The second year I increased my crop from three to ten acres, relying on the proceeds of these two crops to enable me to prepare to go into it now extensively. And this I have expended for that purpose, building barns, &c. And this is exactly the case with many others. And now the question is, can we safely proceed? If anything near this amount is put on *leaf* tobacco, I apprehend not. * * * I would take it as an important favor if you would, as soon as convenient, write your views on this subject. What would be the probable effect on the prices of the crop of 1863?—this is not yet marketable. What on the crop of 1864? The time is short now when we must decide as to this year's crop."

Other correspondents say that many will decline the cultivation of the crop entirely; others that they will cultivate it but partially; others think that if the farmer has to pay the tax before sale he will be ruined. To quiet apprehensions so injurious to the crop of 1864, as well as to bring the public mind to a correct judgment of the proposed tax, I now give my views in regard to it.

The above extract will serve to show how much capital has been invested recently in tobacco cultivation in the loyal States, to make up the deficit of southern production. To so legislate as to jeopard it would be rashness, especially when the government has had no experience of the operation of direct taxes on the exportation of our agricultural products.

To determine the probable operation of the proposed excise, we must look at the tobacco crop *in its production and consumption; what portion is consumed at home, and how much abroad; and what rivalry American tobacco encounters in foreign markets.* These particulars I will consider in the order stated.

I.—THE AMOUNT OF THE TOBACCO CROP.

The census returns of 1840, 1850, and 1860, exhibit the amount of this crop at these periods to be as follows :

	1840.	1850.	1860.
Loyal States . . .	96,523,119 pounds.	108,774,907 pounds.	230,343,321 pounds.
Disloyal States .	123,084,620 "	90,961,429 "	199,021,430 "
Total	<u>219,607,739 "</u>	<u>199,736,336 "</u>	<u>429,364,751 "</u>

Between 1840 and 1850 it will be seen that the crop of tobacco decreased 19,871,403 pounds. This is a remarkable fact, in a country such as ours, where the leading crops have uniformly increased so rapidly. The cause of it

furnishes an instructive lesson to our present inquiry, and will be found in the following table of the prices during the decade between 1840 and 1850 :

Prices of tobacco leaf in New York.

1841.....	5½ @ 11 cents.	1846.....	2½ @ 7 cents.
1842.....	3 @ 7 "	1847.....	3 @ 6¾ "
1843.....	3 @ 6¼ "	1848.....	3½ @ 7½ "
1844.....	2 @ 6 "	1849.....	4½ @ 8 "
1845.....	2½ @ 6¾ "	1850.....	6 @ 10½ "

We see that under these low prices the producer could not profitably grow this crop. In the south, where the decrease was about thirty-two millions of pounds, the planter could more profitably direct his labor in other channels. We will presently see that even such low prices could not induce a corresponding increased export demand. But between 1850 and 1860 the increase in tobacco production was great, being 229,628,425 pounds, or over 115 per cent. An examination of the market prices during these years will show that this prosperity is in consequence of better prices.

Prices of tobacco leaf in New York.

1851.....	5¾ @ 11½ cents.	1856.....	7¼ @ 14½ cents.
1852.....	4 @ 9 "	1857.....	9½ @ 18½ "
1853.....	5¼ @ 8¾ "	1858.....	6 @ 15 "
1854.....	6 @ 10 "	1859.....	4¾ @ 13 "
1855.....	6¾ @ 12¼ "	1860.....	3¾ @ 12½ "

Adding these columns of prices together and taking the mean of their product, we have 55½ as the general average of the first of these decades, and 92¼ as that of the last. Between these, therefore, lies the point of remunerative prices, when labor and other expenses are moderate as they were in that decade. With present cost of these, it is easy to see that this point, if at all represented by any of these prices, is by those of the highest, the year 1857.

II.—THE HOME CONSUMPTION AND THE EXPORTS OF TOBACCO.

To determine the effect of the proposed excise, we must know the strength of the elements which produce the demand for this crop. These elements are the home consumption and the export trade. The only way of determining the former is by deducting the latter from the entire production. This, we have seen, was 429,364,751 pounds in 1859, as returned by the census of 1860. The export of that year was 198 846 hhds., 19,651 bales, and 7,188 cases. The weight of a hogshead of tobacco varies much, from 800 to 1,600 pounds, and it is safe to regard the entire export at 200,000,000 pounds. This would leave for home consumption, 229,364,751 pounds. In these figures we see the *elements* which have made the tobacco crop so great as it was prior to the rebellion, but their *strength* also must be considered, that their respective power to endure the proposed excise may be determined.

The export trade in tobacco, although great, has been slow of growth. It commenced with the earliest settlement of Virginia. But it is not necessary to go back of 1840 for present purposes. From 1840 to 1850 the export was 1,346,632 hhds., and from 1850 to 1860, 1,415,270 hhds., a gain in ten years of only 68,638 hhds., or .051 per cent., while the increased production was 115 per cent., and the increase in population was only 35½ per cent. These facts exhibit an increase of home consumption, over that of population, of 80 per cent. From 1840 to 1850 the increase in population was also 35½ per cent., whilst the home consumption of tobacco decreased. These extraordinary conditions show

influences as extraordinary. The increase in the home consumption during the last census decade is, doubtless, attributable in a great degree to the progress of the nation in wealth during it, whilst the preceding decade was the most disastrous ever experienced during peace.

But the fact of the extremely slow progress of the export trade is conspicuous, and indicates a weakness that can ill endure any burden at all, much less the heavy one now proposed. The cause of this weakness will be seen in considering the third portion of our subject, viz :

III.—THE OPPOSITION AMERICAN TOBACCO ENCOUNTERS IN THE FOREIGN MARKET.

This opposition is twofold: *first*, the production of tobacco in European and other countries; and *second*, the heavy duties and oppressive monopolies to which our tobacco is subjected.

1. *The production of tobacco in foreign countries.*—European nations do not take a census of the amounts of their agricultural products, as we do. Hence there are no data upon which to estimate their amounts from time to time, as this department does of our own crops. All opinion is mere conjecture, and of all uncertainties relative to their crops, that of the amount of the tobacco crop is the greatest. It has been variously estimated at from 200,000,000 pounds to 400,000,000. Mr. Homans, in his *Encyclopedia of Commerce*, gives a table of the capita consumption by most of the European nations, and an estimate on this basis would make the consumption of tobacco not less than 1,500,000,000 pounds annually.

After giving to the returns of our consular agents a careful examination, we see no reason to suppose the tobacco product of Europe to be greater than 300,000,000 pounds. Our own superior and cheaper tobacco meets a consumption there of 200,000,000 pounds, as has been already shown. It would, in all probability, wholly supersede the production of European tobacco, was the latter not protected by the duties and monopolies referred to.

The intelligent consul general at Frankfort-on-the-Main thus speaks, in 1862, of the production of tobacco in the Zollverein, where the duty on tobacco is very moderate:

“As regards the cultivation of tobacco in the States of the Zollverein, the following particulars may be of interest. It is evident from the official reports of those States of middle and southern Germany, which have hitherto been remarked for extensive cultivation of tobacco, that this branch of industry has much decreased lately. In the year 1860, 23,960 Prussian acres of tobacco were cultivated in the Grand Duchy of Baden, while in 1861 there were only 18,722. In Bavaria the number of days' work in those two years fell from 15,466 to 12,138; in the Grand Duchy of Hesse, from 2,667 to 1,824; in Electoral Hesse, from 1,040 to 653; in the Thuringian States, from 1,088 to 604; Wurtemberg, from 456 to 188; kingdom of Saxony, from 106 to 48 Prussian acres. The cultivation of tobacco in Hanover fell from 1,932 to 1,227 Prussian acres. The result in Prussia is not known yet, but in the year 1860 there were 25,284 acres sown with tobacco. As may be seen, a rapid decline took place in the Bavarian and the Baden palatinate, the two principal places in the south of Germany for the cultivation of tobacco. In each of these two provinces, more than 21 per cent. In the year 1860, there were 93 parishes engaged to a greater or less extent in the cultivation of this plant. In 1861 there were only 29.”

But in Austria tobacco is a government monopoly, which means, that it buys and sells the entire crop; it fixes the prices to be paid, and limits its cultivation to the States of Hungary, Servia, and the Banat. And here its cultivation has increased rapidly, under the protection of prohibitory duties.

Tobacco product of Austria.

Years.	Acres.	Products, lbs.	Years.	Acres.	Products, lbs.
1852.....	34,707.....	22,477,700	1856.....	49,265.....	53,256,500
1853.....	37,900.....	27,489,700	1857.....	57,492.....	45,502,500
1854.....	40,978.....	45,687,300	1858.....	81,695.....	72,440,400
1855.....	46,900.....	54,651,900	1859.....	127,550.....	144,174,300

In the last of these years, we see that the crop was doubled. In the same year the United States produced its great crop of 429,364,751 pounds. It was these heavy crops, probably, that depressed the tobacco cultivation in the Zollverein in 1861.

Russia is represented as a large tobacco-growing country, but the commercial reports for 1862 may mislead on this point, for not one of our consuls at its chief ports speaks of tobacco as a crop of the country, nor of it as an article of export. It is true that it is a crop demanding greater skill and better implements of husbandry than possessed by Russian agriculture; but in the report of 1860, one of our Austrian consuls says that Russia produces a large quantity of tobacco, which it exports on very moderate terms to Sweden, Denmark, Bremen, and Hamburg; and that Turkey and the Principalities produce more than they require for their own consumption.

But whilst it is admitted that the cultivation of European tobacco, under ordinary circumstances, cannot rival our own product, yet where protected by duties against us, it fills the measure of home consumption. Austria is constantly seeking to extend its export trade in tobacco; and even in the Zollverein, under our diminished production in consequence of the war, it has regained the ground lost in 1861. The consul at Frankfort-on-the-Main, already quoted, says:

"This decrease in the cultivation of tobacco may, however, cease should the war in America be protracted longer than is expected, so as to prevent the exportation of tobacco from our country, as it has already done during the last eighteen months. Such, at least, may be inferred from the late reports on the tobacco trade in this immediate neighborhood, especially in Rhenish Bavaria and Baden. The business of the Pfalz tobacco is at present in a more flourishing condition than it almost ever was.

"There is a demand from all quarters, and still higher prices would be given if satisfactory articles could be obtained. * * * * The principal markets for these extensive sales are Belgium, Holland, and England, and consignments are daily made to those countries. The manufacturers there purchase the tobacco, probably, with a view of replacing that from Kentucky and Maryland, and also partly as a speculation, thinking that the troubles in our country are far from being ended. In any case, however, Pfalz tobacco will constitute a great part."

These facts embody a lesson that every one can easily learn. They show that when our tobacco, as between 1840 and 1850, was very low, the export trade increased thirty per cent.; but when, because of its great home consumption the prices advanced so as to be remunerative to the grower, as between 1850 and 1860, then the export trade virtually ceased to increase. They show that our foreign tobacco trade barely holds its own against countries competent not only to supply their own wants, but capable, when there is a scarcity here or an advance in price from any cause, to meet the demands of those nations usually dependent on us. And in these facts Congress will see the inevitable disastrous effect, not only of the proposed excise, but of any tax on tobacco leaf, with no drawback for exportation. That result must be seen by all upon a moment's reflection. As already said, Austria makes the production and sale of tobacco a government monopoly. Although it has nineteen prov-

inces, yet tobacco cultivation is limited to three of them, *in order to avoid over-production*, as one of our consuls informs us. Yet under such restrictions we see its product doubled in a single year. What may not its production attain to, if our tobacco is advanced 50, or 100, or 200 per cent.? At 900 lbs. to the acre, it requires but 487,777 acres to grow our great crop of 430 millions of pounds. What more evident than that Austria could supply the entire tobacco consumption of Europe, having nearly 12,000 geographical square miles, and a population of 35,000,000? But add to this capacity that of the southern portions of Russia and Germany in Europe, and of Mexico and South America in America, and can any one suppose that our foreign tobacco trade can be maintained under the proposed excise?

The adjusting process consequent on the temporary shortness of our exportation in 1862 and 1863, in consequence of the war, has developed a European production to furnish its own substitutes; that is clearly seen in the circulars of European tobacco dealers.

G. F. Davis & Sons, London, (circular of August last,) speak decidedly of the great danger of the substitution of continental, South American, and African tobacco for that of this country. They say: "In no trade have the effects of the American civil war upon the English market been more clearly defined than in the tobacco trade. Since the commencement of the conflict between the northern and the southern States, the trade of this country in tobacco has undergone a complete revolution. The quantity of American growth of that article now used in the United Kingdom is not much more than one-half what it was two years ago, and it is gradually decreasing; indeed, it is extremely problematical if the American consumption in this country will ever again reach its former amount, for the growth of other countries is now so freely used that it threatens to supersede the American growth altogether."

Robert Kerr & Son, Liverpool, in November last, say: "After a succession of frosts, perhaps earlier, more numerous and destructive to the tobacco crop than ever before known, we see the great markets of the world stand stoically indifferent, and barely maintaining old prices. In Great Britain, large stocks of American, plentiful supplies, and *increasing consumption of substitutes*, periodical fears of peace, and annual alarms of *large crops of all growths*, sufficiently explain this state of affairs."

Grant, Hodgson & Company, London, September first, refer to a *largely increased consumption of continental tobacco*, that has very materially interfered with the American, and express a serious doubt that the present difference in price can be supported without *diminishing consumption*.

W. A. & G. Maxwell, Liverpool, in November last, testify that the common and medium grades of cutting-stemmed are quite neglected, "substitutes" continuing to interfere much with their consumption.

R. S. Maitland & Company, in May of last year, say that manufacturers buy "only from hand to mouth," notwithstanding the prolongation of our war, "and avoiding as much as possible the higher costing article of strips, they resort to the various cheap growths, which have latterly displaced American tobacco to such an important and increasing extent."

D. A. Watjen & Company, Bremen, in their circular of September 29, 1863, note a briskness in American tobacco, "there being evidently a disposition to realize, in order to escape a further possible depreciation in the value of the article." This depreciation is claimed to arise from "the late high value of the article, which *interfered with the consumption*, and caused *various substitutes* to be used." Facts have shown, they assert, that high prices increase production, so far, at least, as Europe is concerned.

In a previous circular they maintain that purchasers are restricted to immediate wants, in part because the continuing high range of prices affects consump-

tion, and that "they prefer a low-priced article whenever they think that such may possibly answer their purpose."

2d.—*The duties and monopolies our tobacco is subject to in foreign nations.*—In considering the opposition our tobacco encounters in foreign nations from their heavy duties and oppressive monopolies, it is necessary to examine the views of the Commissioner of Internal Revenue, as to the effect the proposed excise would have on these duties and monopolies. He remarks:

"In 1860 the tobacco crop was, in round numbers, four hundred and twenty-eight millions of pounds. Last year it was only two hundred and eighty millions of pounds. This year, notwithstanding the extensive planting in the northern and middle States, the crop is estimated in the last report of the Agricultural bureau at only two hundred and fifty-eight millions, being still one hundred and seventy millions of pounds less than in 1860. While the domestic production is thus diminished, the foreign demand has been constantly increasing, and it will not be likely to be seriously affected by the difference in price which its exportation, subject to our excise on the raw material, will occasion. I therefore beg leave to submit the proposition that tobacco be taxed in the leaf in the hands of the producer, and that no drawback be allowed on its exportation in that shape, so that the cost to the foreign manufacturer may be increased to the extent of our excise. The tax on tobacco in the leaf, with all the stems on, might, I think, be fixed with advantage to the revenue, and without injury to the producer, at twenty cents per pound; a light tax, varying from five to ten or twelve cents per pound additional, might be imposed on the manufactured commodity."

The position assumed in this extract is, that foreign nations are dependent on our tobacco; therefore, they must buy it, and what tax we add will be deducted from their duties; hence the foregoing demand will not be seriously affected; that this demand is increasing, whilst our production is so much less than in 1860—therefore the law of supply and demand justify this excise

The facts already stated show that foreign nations are not dependent on American tobacco; that as prices advanced from a temporary scarcity, they purchased "substitutes," the growth of the continent "threatening to supersede the American growth altogether."

In a general way, I have shown that the foreign demand, during the last census decade, scarcely increased at all. Great Britain is our largest customer, and its purchases exhibit the fact of but a slight increase, and then only at falling rates, as will be seen from the following table.

English imports of foreign and American tobacco, and New York prices.

Years.	Import from all nations.	Imports from the U. S.	New York prices.
			<i>Cents.</i>
1856.....	\$9,903,360	\$2,681,357	7½ a 14½
1857.....	9,475,520	4,855,399	9½ a 18½
1858.....	11,151,618	4,004,642	6 a 15
1859.....	7,816,650	5,421,398	4½ a 13
1860.....	7,472,585	4,908,994	3½ a 12½
1861.....	9,588,655	4,664,042	4½ a 13½
1862.....	6,433,140	-----	9 a 21
1863.....	8,790,490	-----	12½ a 29½

This table is significant. It shows how little is the dependence of Great Britain on us—buying about one-half from us, only when prices are at the

lowest. Now add five or ten or twenty cents per pound to our prices, and what other effect can follow than the entire destruction of our export tobacco trade?

France purchases from us about one-half these amounts, and Bremen about the same as France; and these nations are our heaviest consumers. Our tobacco is sent to nearly all nations just as we purchase from Cuba, *for especial purposes, but not for general consumption*. That fact, of itself, condemns the policy of the proposed excise.

In conclusion, let us briefly look at the effect of this excise on home consumption.

The Commissioner of Internal Revenue lays much stress on the fact that the tobacco crop of 1863 was 170,000,000 pounds less than that of 1859. But, will it be less in 1864? The monthly reports of this department show that in the great tobacco-producing States of the west the following injuries were sustained in consequence of the extraordinary frosts: By Kentucky, three-tenths; Ohio, two and one-third tenths; Michigan, three and one-half tenths; Indiana, four-tenths; Illinois, four-tenths; Missouri, three-tenths; Wisconsin, three and a half tenths; and Iowa, four-tenths. With the inducements now before the farmer, and an ordinary season, there is every reason to believe that the crop of 1864 will equal that of 1859. The excise, therefore, would scarcely begin to operate before the crop would have regained all it lost by the rebellion. A tax of twenty cents on the leaf and ten cents on the manufactured article would advance the cost to the consumer at least thirty cents per pound. It is safe to say that the decreased consumption in consequence would be at least one-fourth. If the home consumption is now 150,000,000 pounds, this would be 37,500,000 pounds. The account, then, would stand as follows: Entire crop, say 350,000,000 pounds; loss of export trade, 200,000,000 pounds; loss in domestic consumption, 37,500,000 pounds. Hence, the tobacco-grower would find at the end of the year two hundred and ten per cent. of his crop unsold. This would be destruction to a product whose foreign trade is worth \$20,000,000, saving that amount of gold exports annually, that the government might receive a like sum one year in direct taxes, and after that a decreased amount so uncertain that it cannot be guessed at. Such an excise would, then, be but an illustration of the policy that killed the goose which laid the golden eggs.

It has long been the settled policy of our government to allow the free exportation of the products of the farm, and the rivalry all of them encounter from foreign governments admonishes us of the wisdom of this policy. The kingly prerogatives of cotton have not been respected, nor would the democratic claims of breadstuffs and provisions be regarded, if they assumed to tax the consumption of the people of Great Britain. Whilst our cotton, tobacco, rice, breadstuffs, and provisions, on account of their better quality and cheapness, can maintain, even-handed, their superiority in the markets of the world, they yet cannot meet competition when clogged with even the lowest export tax.

Has Congress power to lay the proposed tax?

Mr. Kent, in his 12th lecture says:

"It was held that a general power was given to Congress to lay and collect taxes of every kind or nature, without any restraint. They had plenary power over every species of taxable property, *except exports*."

The provisions of the Constitution upon which this decision is based, are:

Section 8, article 1: "The Congress shall have power to lay and collect taxes, duties, imposts, and excises, &c., but all duties, imports and excises shall be uniform throughout the United States."

Section 9, article 1: "No tax or duty shall be laid on articles exported from any State."

After the general power was given in section eight, limitations upon it were

made in section nine. And the manifest object of the one quoted, was to guard against any inequality or injustice towards any State.

Mr. Story says of it:

"The obvious object of these provisions is to prevent any possibility of applying the power to lay taxes, or to regulate commerce injuriously to the interests of any one State, so as to favor or aid another. If Congress were allowed to lay a duty on exports from any one State, it might unreasonably injure, or even destroy, the staple productions or common articles of that State. The inequality of such a tax would be extreme. In some of the States the whole of their means result from agricultural exports. * * *

The burden of such a tax would, of course, be very unequally distributed. The power is, therefore, wholly taken away to intermeddle with the subject of exports—(paragraph 1,014.)" And speaking of the clause quoted in section nine, he adds, "that it was reported in the first draught of the Constitution; that it did not pass without opposition; and several attempts were made to amend it, by inserting after the word 'duty,' the words 'for the purpose of revenue,' and by inserting at the end of it, 'unless by consent of two-thirds of the legislature,' both of which propositions were negatived. The prohibition, he says, extends not only to exports, but to the exporter. Congress can no more rightfully tax the one than the other."

Mr. Hamilton, in the 32d number of the *Federalist*, says "that the general power of taxation is abridged by another clause, which declares that no tax or duty shall be laid on articles exported from any State; in consequence of which qualification, it now only extends to the duties on imports."

Since, then, it is clear that taxes cannot be laid on exports, the question arises, *Can Congress lay an excise tax, and deny the right to its drawback on exportation?* What is an excise? Mr. Story considers, at much length, the meaning of the words taxes, duties, imposts, and excises, as used in the Constitution, and comes to the conclusion that they mean direct and indirect taxes, and that in the latter are embraced duties, imposts, and excises. Hence, when the Constitution says that no tax or duty shall be laid on exports, it is the same as declaring that no direct or indirect tax shall be so laid. Both of these kinds of taxes operate alike on exports, by so raising their price that they cannot be exported. And for this reason the prohibition extended to both kinds. How the proposed excise would operate on the export of tobacco has been shown at length. The destruction of such a crop is clearly one of the evils the Constitution so decisively guarded against.

For the purposes of revenue, Congress may affect the domestic consumption of any commodity by taxes on it, but there its authority ends. That power cannot be continued so as to affect its export. Hence, that part of the recommendation of the Commissioner of Internal Revenue is clearly unconstitutional which advises "that no drawback be allowed on its exportation in the leaf, so that the cost to the foreign manufacturer may be increased to the extent of our excise."

I have given these views, not unmindful of the wants of the government for revenue, nor of that high respect due to the recommendation of a co-ordinate department, but with that freedom which the well-being of our agricultural interests demands.

ISAAC NEWTON,
Commissioner.

TOBACCO CULTIVATION.

[Believing that there will be no tax on tobacco leaf, and that the tobacco-grower will find profit in giving to its production all the labor he can bestow on the crop, the following article is now published, in anticipation of the annual

report for 1863, for which it was prepared, as its plain and excellent directions will aid every grower of tobacco.]

ESSAY ON THE CULTURE AND MANAGEMENT OF TOBACCO.

BY L. J. BRADFORD, OF AUGUSTA, KENTUCKY.

The success of a growing crop of tobacco depends much upon early planting, and the selection of such situations for plant beds as will insure a proper exposure to the sun is all-important.

Situation, soil, and preparation of plant beds, and the manner and time of sowing.

The eastern or southern slopes of hills, near their base, afford the best locations; the beds so situated being free from sobbing, and the warmth of the sun greater than upon a flat surface. Regard should also be had to the character of the soil. It should be sufficiently close to render it retentive of moisture, and yet contain sand enough to give it quickness; made earths and puffy soils are unfit, being both too arid and liable to heave.

Beds prepared in the early part of the season require more burning than those at a later period. There is but little danger of burning too hard, however, at any time, as the plants generally succeed best upon the beds most thoroughly burned. After the beds are thus burnt and cooled off, they are dug up with a common sprouting hoe to a depth sufficient to afford the plant a loose soil in which to extend its roots. Care should be taken to leave the surface soil as much on top, in the preparation of the bed, as possible, as the young plants will take a quicker and better growth. After the bed is well pulverized by hoeing and raking, the seeds mixed with dry ashes are to be sowed evenly as possible over the surface, at the rate of a common table-spoonful to every 80 square yards, (cubic measure,) the bed lightly raked over or trod evenly with the feet and well covered with brush, on which there should be no leaves, and protected from the intrusion of stock. Seed may be sown from 1st of January to the 10th of April.

Management of plant beds.

So soon as the young plants attain the size of a dollar the brush may be removed; if the weather is dry the brush may be suffered to remain to advantage, and when removed taken off in the evening; with seasonable weather the plants will soon be large enough for transplanting.

The preparation, ploughing, and laying off the land for the crop.

The land designed for the crop should be fertile—if not naturally so, should be made so by manuring. Any common manure will answer a valuable purpose, tobacco being a plant that delights in a rich soil. The land should be deeply and thoroughly ploughed, whenever practicable, in the fall or winter. In this there is twofold advantage: 1st. It destroys many insects that injure or destroy the young plants. 2d. It renders the land more friable and more easily cultivated. As the season approaches for planting out the crop, (which is here from May to July,) the land should be ploughed again and kept clear. It is then to be laid off with a plough three and a half feet each way, and a small hill made in or on the check, as may be preferred, for the reception of the plant. The hill should be raised a little above the common level of the surface, the size of the hill being a matter of fancy with the planter, and not regarded as a matter of consequence in general.

Transplanting.

So soon as the plants have attained a sufficient size for transplanting, they may be drawn from the bed and placed on the hills whenever there is moisture enough to prevent their dying. This is generally done after a shower; but should the land be very wet it is best to wait until it dries or settles some, as the plant will do better set when the land is not too wet.

Cultivation of the crop.

The plant, if it survives the transplanting, will soon commence growing, and requires no attention until the weeds and grass begin to make their appearance, when they must be subdued by the plough and hoe. Should the earth become hard about the plant the hill should be lightly scraped with a hoe. This will greatly promote the growth of the plant. When the plant becomes large enough the land may then be deeply and thoroughly ploughed, (taking care not to injure the roots of the plant,) and the plant hilled up by following with hoes and throwing the loose soil around it. In land that has been kept clean this may be the last ploughing; the weeds and bushes may be kept down with the hoe, should any appear.

Management of the growing crop, in topping, leafing, worming, &c.

When the plant is large enough to top, the leaves nearest the ground are to be broken off and the bud taken out, leaving on the stalk the number designed for the plant. The number of leaves is much a matter of fancy, yet it has more to do in forming the future character of the tobacco than most planters seem apprized of. Experience has fully demonstrated that ten to twelve leaves are sufficient for a plant, and this is almost a universal practice among our best planters. The first plants, if the crop has grown off unevenly, may be placed to twelve leaves; the next topping may be ten; and as the season advances the number may be lessened, as the appearance of the crops and the season indicates. This will insure more uniformity in maturing the crop, saves much labor, and adds to its value, making it more uniform in quality. At this stage of the crop the care and attention of the planter is almost constantly required to keep off the worms and insects which prey upon it, and in breaking off the suckers which soon appear upon the stalk at every leaf. Ample employment may be afforded to every idler about the premises.

Harvesting and curing.

As the plant approaches maturity it begins to thicken, and assumes a stiff, sleek, and motley appearance, which the most unpracticed eye will readily detect. Should the weather be favorable, (viz., dry,) the first ripe plants may be permitted to remain standing until a sufficient quantity is matured to satisfy the planter in making a regular cutting. If, however, the weather be unpropitious, it is best to cut as fast as it matures, as it is subject to injury under such circumstances if suffered to remain too long. The harvesting of the crop is an important period in its cultivation, and neglect on the part of the planter will bring loss in its future value. In cutting the plant a sharp knife is to be used, and the stalk to be split about half its length, taking care not to break the leaves or otherwise injure them, and the plant to be set with the but of the stalk up, exposed to the sun. So soon as the plant is wilted enough to handle without breaking, it should be taken up and laid in a heap of seven to nine in a place, being governed by their size, and hung as soon as possible to prevent being scorched by the sun. The after part of the day is best for cutting;

there is less danger of getting the plant sunburnt. The sticks upon which the plants are hung are small pieces of timber four feet long and of sufficient size to support the plants. These are taken to the barn on a cart or wagon after receiving the plants, or may be placed upon scaffolds in the fields, at the option of the planter. If the weather is fair it is best to sun it, as it aids the curing and adds to the strength and elasticity of the leaf after it is cured. Care should be taken not to place the sticks too close, if the weather be damp and warm, as there is danger of injuring the plant. After remaining on the scaffold a few days it becomes yellow or assumes the color of a leaf of autumn; it must then be carried to the barn or curing house and placed away, keeping the sticks far enough apart to secure a free circulation of air through them. If the weather is wet it is best to take the plants to the house at once, and let the yellowing process take place in the house rather than risk the changes in the weather, as rain is always injurious to the plant after it is cut, and especially so after it becomes yellow.

Importance of the curing process; furnaces preferable to open fires; degree of heat at different stages of curing.

The curing process is one of the most important in the future value of the crop, and too much care cannot be given it, a small neglect lessening the value of the crop seriously. If the weather is dry and the tobacco is not too much crowded in the house, the action of the atmosphere, assisted by furnaces instead of fire, will be sufficient, and is preferable, for the smoke from the fire is very injurious to fine manufacturing and cutting tobacco; all lovers of tobacco greatly preferring the natural flavor, and then, too, many accidents happen yearly from the use of fire. The difference in the sale of one good, ripe, furnace-cured crop will pay for all the outlay for furnaces and fixtures for twenty years, and the heating process is more uniform and takes less fuel. To those that have no furnaces, a small portion of fire will be sufficient to effect the object. If, however, the weather is warm and damp, the atmosphere will not aid very materially in curing the plant, and unless firing is resorted to the plant is certain to be more or less injured. It is always safer, after a house is filled with green tobacco, to rely mostly upon the action of the fires to a considerable extent. These should be small and slow at first, and continue so until the tobacco is clear of the moisture engendered by the fire, and then the fire should be increased until the leaf is nearly cured. When this is the case, the fires should be allowed to go out, and the tobacco be suffered to come in case, or get soft again. The quality of the article will be improved by permitting it to come in case once or twice before it is thoroughly cured in stem and stalk. Dry and sound wood is best for firing. If the object of the planter is to make a piebald or fancy article, care should be taken never to permit the leaf to get very soft during the curing process; and to make a really fancy article, the tobacco must be thoroughly yellowed first, and then be cured entirely by fire. This particular description of tobacco is, however, not more desirable or valuable to the consumer, as the essential properties of the plant are frequently destroyed by the action of the fire. As a general thing, it is better to cure the plant by a natural process of air and the action of the atmosphere; and where the planter is provided with a sufficient quantity of room to house the crop without crowding too close, the object can be obtained without the aid of much fire, and the wood and danger of burning the crop be saved, and in some markets increase the value of the crop.

Stripping and bulking.

Having now arrived at the time when it is supposed the planter has secured and cured the crop, we proceed to give some directions in its future management and preparation for market—remarking that many, after all their previous care

and labor, lose its profits to a good extent by either a want of knowledge as to its management, or a carelessness which is inexcusable upon their part. After the tobacco has been thoroughly cured in stem and stalk, it is then ready to commence stripping, or taking the leaves from the stalk. In this process the plant passes through the hands of the most experienced laborer on the farm, who takes off the bad or injured leaves, and ties them neatly in bundles of eight or ten. The plants that are thus culled are given to others, who strip off the remaining leaves and tie them in bands of six or eight leaves, wrapping tightly and neatly with the tip of the leaf used as a tie, so as to form a head of one and a half inch in length. Care should be had to make the bundles as uniform in size and color as possible, as it adds to the beauty of the sample by which it is to be sold. When the day's work is done, let the tobacco, neatly pressed through the hands, be put in a winrow, as it is termed, viz., laid straight in a bulk or pile of sufficient length to hold the day's or two days' work, and only the width of one bundle and one-half, reversing each course so as to have the heads of the bundles out. Here it may remain until stripping season is over, or the first of April. Cold winds and frosty weather injure the texture and the rich flavor of the leaf. The first good drying spell of weather after the stripping, get the smoothest and smallest sticks upon which the tobacco was hung, and hang up the tobacco to dry. When the weather again becomes moist enough to bring the tobacco in case, take it down and carefully bulk away as before directed, only taking more care to straighten the bundles and make the bulk much wider; this is done by lapping the bundles over each course, similar to shingling a roof, the bulker having his knees upon the bulk, carefully laying down the tobacco as it is straightened and handed him. When the bulk is finished, weigh it down heavily with logs or some heavy weight. Care must be taken that the tobacco does not imbibe too much moisture, or get too high in case before it is bulked, as it will injure. So soon as the tobacco becomes soft enough to handle without breaking, it may be put in bulk, and should the stems break a little under the pressure of the bulker's knees, no material damage will be done, provided the leaf does not crumble. A little attention will soon teach the most ignorant the proper order for safe-keeping. The tobacco will be safe in bulk, and will wait the planter's convenience to prize it in hogsheads.

Separation of different qualities—packing in hogsheads.

In prizing, the different qualities should not be mixed; and if the planter has been careful to keep them separated, no trouble will be had in assorting them when ready to prize. In packing in the hogsheads, care should be taken to have every bundle straight and every leaf to its bundle. From a well packed hogshead any bundle may be drawn without injury or interruption to the others. The usual way of packing is to commence across the middle of the hogshead, placing the heads of the first course of bundles about eight or ten inches from the outer edge and running the course evenly across. The packer then places the bundles of the next course in the same direction, the heads against the side or edge of the hogshead, and follow the circumference until the heads of the two courses come in contact. After that course is completed he finishes the other side by placing the heads against the cask as before, so as to have three courses across the cask, the bundles all laid in the same direction; and the next layer is reversed, carefully placing each bundle as it is thrown or handed him. When filled it is subjected to the press or screw and forced down. Our hogsheads are from forty-four to forty-eight inches across the head and fifty-eight inches in length, and from eighteen hundred to two thousand pounds can be easily prized in them. If the tobacco is large, rich, and oily, the harder it is pressed the better, and the better price it commands. These remarks are particularly applicable to those heavy descriptions of tobacco known in Virginia as heavy ship-

ping leaf, and in the west as Clarksville tobacco, where the soil and climate are peculiarly adapted to the production of this description of tobacco. In climates not so well adapted and soil of a different nature, the same variety of tobacco will assume a different character, being of a finer or coarser texture, as the case may be, light and bulky, and destitute of oil and substance. Tobacco of this description should be managed as before directed, but prized lightly in the cask so as to admit of a free and open leaf, such being mostly required for cigar leaf.

Necessity of good management in the cultivation, harvesting and packing of the crop.

The writer has been a close observer of tobacco sales for several years, and has seen a difference of two to five dollars per hundred weight, produced in crops grown on adjoining farms, cultivated in the same manner, and sold on the same day. The buyer must take the tobacco as it comes from the planter's hands; he can use only a certain part of it per day. That in a safe condition he can keep for future use, and is always willing to pay for it full market rates; that out of condition he must keep until he can use it, and, if he considers his interest, buys at what it will be worth to him when he shall be ready to work it up, thereby throwing on the planter the injury and loss in the tobacco from the time of purchase to that of manufacturing. This loss is considerable. The planter has to bear it; it is right that he should. He has no cause to complain of the manufacturer. If he feels like doing so, let him come here in September or October and walk into one of our large factories and take a look at a hog-head then being pulled up, bearing his own name on its head, which he sold in the spring. We presume he would then feel rather more sympathy than blame for the manufacturer, and congratulate himself that he and that tobacco parted long ago. But planters can remedy this evil. It is useless for them to talk about bad seasons for striking, bad winds, cold winds, too much or too little rain, &c. This will not exonerate them from the duty they owe themselves. These bad seasons are not universal. They do not affect every planter; when they do, we shall believe them. There are planters who always manage their crops properly in defiance of too much season, too little season, or any season at all. They are men of reputation as planters, and will do all they can to sustain it. Examine their crops year after year, and they will invariably be found in good condition, and will always bring the highest price.

IMPORTS AND EXPORTS.

In the report for November we showed that the *imports* for the year 1863 had exceeded the exports of domestic produce \$69,553,125. This balance must be liquidated by the exports of gold and silver.

The increase in dry goods imported can be seen by the following "total amount," thrown on the market at New York, for the seven months of each year, commencing with July and ending the last of January.

1862.....	\$20, 623, 651
1863.....	36, 358, 402
1864.....	46, 127, 496

The increase in wines and brandies imported may be seen from the following statement showing the imports of these into New York for the month of January of each year :

	Wines.		Brandies.	
	<i>Casks.</i>	<i>Cases.</i>	<i>Casks.</i>	<i>Cases.</i>
January, 1864.....	5,226	6,552	1,360	588
January, 1863.....	3,785	2,957	244	30
January, 1862.....	2,022	2,383	626	1,000
January, 1861.....	1,820	3,283	213	-----

Exports of breadstuffs.

Whilst our imports are thus increasing, the exports are rapidly falling off, as will be seen from the table below, giving the exports from September 1, 1863, to February 5, 1864, of each of the following years:

	Flour.	Wheat.	Corn.
	<i>Bbls.</i>	<i>Bush.</i>	<i>Bush.</i>
1864.			
To Great Britain.....	450,183	6,723,884	240,220
To the Continent.....	25,551	5,463	13,965
Total in 1864.....	475,734	6,729,347	254,185
1863.			
To Great Britain.....	594,610	14,303,053	3,903,719
To the Continent.....	65,090	15,669	97,288
Total in 1863.....	659,700	14,318,722	4,001,007
1862.			
To Great Britain.....	1,107,339	11,682,076	6,358,433
To the Continent.....	525,599	229,949	743,457
Total in 1862.....	1,632,938	11,912,025	7,101,890

Exports of provisions.

The following table has been kindly prepared for the department by Mr David Ogden, of New York, to whom we are much indebted for this and other favors.

The rebellion changed the direction of our export trade in provisions. Instead of going down the Mississippi to New Orleans, it went the northern route to New York. In relation to this, Mr. Ogden says: "I contend that when the war is over this trade will never go back. When the Erie railroad is finished you can put goods in a car at New York and go direct to St. Louis. Look for a moment at this. A merchant at St. Louis puts his produce in a car, and in two or three days he can sell it for cash in New York, buy his return goods for cash, and in a week or ten days he is back at St. Louis. It will cost a little more freight; but see the saving in time, and the selling and buying for cash. The old way was to send the produce to New Orleans, and then buy your return goods at twelve months' credit. That is, the country people were always twelve months behind-hand." True. And we add, that the credit system, by inducing extravagance, kept them four times twelve months behind a prosperous condition.

Value of the exports to foreign countries of beef, pork, hams and bacon, lard, butter, and cheese, from the United States, for the year 1863, and comparative quantities with 1862 and 1861.

Year.	Great Britain.	Other ports in Europe.	Other foreign ports.	Total and price.	Value.
1863	77,298 tierces of beef.....	1,553 tierces of beef.....	199 tierces of beef.....	78,750, at \$36 00 per tierce.....	\$2,947,500 00
1862	63,511 tierces of beef.....	159 tierces of beef.....	290 tierces of beef.....	63,957, at 22 00 per tierce.....	1,407,054 00
1861	51,421 tierces of beef.....	145 tierces of beef.....	522 tierces of beef.....	52,085, at 18 00 per tierce.....	937,534 00
1863	5,534 barrels of beef.....	6,790 barrels of beef.....	41,929 barrels of beef.....	54,253, at 14 00 per barrel.....	759,542 00
1862	1,636 barrels of beef.....	4,397 barrels of beef.....	40,331 barrels of beef.....	46,364, at 12 00 per barrel.....	556,368 00
1861	5,370 barrels of beef.....	2,363 barrels of beef.....	31,807 barrels of beef.....	39,542, at 11 00 per barrel.....	434,962 00
1863	2,277 tierces of pork.....	13 tierces of pork.....	23 tierces of pork.....	2,300, at 30 00 per tierce.....	69,000 00
1862	3,758 tierces of pork.....		51 tierces of pork.....	3,830, at 27 00 per tierce.....	103,814 00
1861	1,562 tierces of pork.....		55 tierces of pork.....	1,637, at 16 00 per tierce.....	26,192 00
1863	37,095 barrels of pork.....	13,995 barrels of pork.....	399,033 barrels of pork.....	960,963, at 19 00 per barrel.....	4,941,767 00
1862	48,010 barrels of pork.....	18,816 barrels of pork.....	163,210 barrels of pork.....	251,636, at 15 00 per barrel.....	3,750,540 00
1861	24,978 barrels of pork.....	1,919 barrels of pork.....	148,231 barrels of pork.....	251,636, at 14 00 per barrel.....	2,432,164 00
1863	176,189,700 pounds of hams and bacon.....	22,860,200 pounds of hams and bacon.....	7,839,800 pounds of hams and bacon.....	206,900,700, at 8 1/2 per pound.....	16,532,056 00
1862	155,462,500 pounds of hams and bacon.....	15,111,500 pounds of hams and bacon.....	7,344,500 pounds of hams and bacon.....	177,918,500, at 8 1/2 per pound.....	14,678,276 00
1861	54,382,500 pounds of hams and bacon.....	838,500 pounds of hams and bacon.....	6,513,700 pounds of hams and bacon.....	61,734,800, at 9 per pound.....	5,557,932 00
1863	35,671,900 pounds of lard.....	53,814,400 pounds of lard.....	24,802,900 pounds of lard.....	134,289,200, at 13 per pound.....	17,457,516 00
1862	62,325,300 pounds of lard.....	61,149,500 pounds of lard.....	27,954,700 pounds of lard.....	151,429,500, at 10 per pound.....	15,142,950 00
1861	10,699,500 pounds of lard.....	10,699,500 pounds of lard.....	18,891,600 pounds of lard.....	66,444,400, at 9 per pound.....	5,970,996 00
1863	2,675,600 pounds of butter.....	2,675,600 pounds of butter.....	5,616,800 pounds of butter.....	29,992,700, at 24 per pound.....	7,176,648 00
1862	29,241,000 pounds of butter.....	1,108,600 pounds of butter.....	5,484,700 pounds of butter.....	35,894,300, at 17 per pound.....	6,091,831 00
1861	21,845,200 pounds of butter.....	1,264,300 pounds of butter.....	4,808,800 pounds of butter.....	27,938,300, at 15 per pound.....	4,190,745 00
1863	39,075,400 pounds of cheese.....	1,085,400 pounds of cheese.....	2,946,000 pounds of cheese.....	43,106,800, at 13 per pound.....	5,603,884 00
1862	38,722,000 pounds of cheese.....	1,037,000 pounds of cheese.....	2,731,900 pounds of cheese.....	42,489,900, at 11 per pound.....	4,673,889 00
1861	41,937,900 pounds of cheese.....	1,557,100 pounds of cheese.....	1,950,300 pounds of cheese.....	45,445,300, at 7 per pound.....	3,161,171 00

RECAPITULATION.

Value in 1863.....	\$51,607,993
Value in 1862.....	46,404,102
Value in 1861.....	82,740,726
Value in 1860.....	15,330,167

NEW YORK CATTLE MARKET.

The following tables have much interest, as they exhibit the progress of this great cattle or fresh meat market, sustained by the west, and giving so much employment to railroads.

Year.	New York. Beeves.	Bergen. Beeves.	Cows and calves.	Veals.	Sheep and lambs.	Swine.
1863.....	238,692	24,634	6,742	36,294	520,951	1,100,035
1862.....	227,328	8,681	5,232	30,054	475,306	1,105,754
1861.....	206,227	31,002	5,899	33,171	514,587	599,582
1860.....	192,922	32,921	7,276	39,687	516,790	320,329
1859.....	168,859	37,334	9,515	37,392	506,961	399,119
1858.....	164,636	26,651	10,160	32,645	450,027	551,474

The following table exhibits the number of cattle sold at Allerton's yards being a principal one for New York, and the States from which they came.

States.	1860.	1861.	1862.	1863.
New York.....	28,296	29,280	35,958	28,928
Illinois.....	63,429	86,445	101,742	117,638
Indiana.....	12,182	15,142	16,555	14,040
Iowa.....	11,892	11,597	3,707	8,455
Virginia.....	1,253	1,117	117	85
Connecticut.....	519	805	410	460
Massachusetts.....	38	67	-----	36
Wisconsin.....	146	120	-----	59
Ohio.....	36,710	36,470	30,635	19,688
Kentucky.....	13,174	9,058	9,669	7,682
Michigan.....	3,642	4,650	7,225	9,054
Pennsylvania.....	2,786	1,109	1,550	746
Missouri.....	7,716	3,735	1,729	1,575
New Jersey.....	386	515	411	195
Texas.....	99	58	-----	-----
Canada.....	2,008	1,131	523	686
Cherokee Nation.....	64	100	-----	-----

Yearly average prices.

	1860.	1861.	1862.	1863.
Beeves..... per pound..	\$0 08	\$0 07 $\frac{3}{4}$	\$0 07 $\frac{3}{4}$	\$0 09 $\frac{1}{4}$
Cows and calves..... per head..	38 50	34 77	34 50	41 00
Veals..... per pound..	5 $\frac{1}{2}$	4 $\frac{3}{4}$	5 $\frac{1}{2}$	6
Sheep and lambs..... per head..	4 21	4 54	4 43	5 89
Hogs, live..... per pound..	6 $\frac{1}{2}$	5 $\frac{3}{4}$	5	5

On the above tables Hunt's Merchants' Magazine, from which we take them, has these remarks: "The receipts from Illinois are larger than those of last year, and she is far ahead of any other State in the list of contributors. The decline in Ohio, Indiana, and Kentucky, is owing in part to the direct contributions of those States to the army of the Cumberland." Illinois is less

favorable to grass-growing than corn-raising, and for this reason is the fattening district of much of the west. The fat cattle sent to market by it is not all of its own raising, but a large portion of Indiana cattle are fattened in Illinois. This is seen from the census returns. In 1860, Illinois had of "other cattle"—that is, those that were neither working oxen nor milch cows—881,877, and Indiana 582,990, being 51 per cent. greater, whilst it sends from six to eight times as many fat cattle to the eastern markets. Although Illinois produces so much corn, yet it raises a less number of hogs than Indiana, because prairies are less favorable for them than woodlands. These facts are necessary to an understanding of the cattle representation that Illinois has in the New York market.

PORK-PACKING IN THE WEST.

The Cincinnati Price-Currents of January 6 and 27 give nearly complete returns of the pork packed in the west the present season. As the returns are not yet complete, we do not wish to report them as fully as we will do when all are received.

The latest returns are as follows :

Number of hogs packed in 1862-1863.....	3, 449, 240
Number of hogs packed in 1863-1864.....	2, 465, 407
Difference	<u>984, 833</u>

This is a great falling off, and there will be a greatly decreased weight also. In numbers it is almost forty per cent. below those of 1862-63. In weight it will not be far from 15 per cent.

In the October report of this Department, an estimate was made of the probable decrease in the number of hogs for the States of Ohio, Indiana, Illinois, and Michigan, four of the principal hog-producing States. This estimate we were aware would put to a severe test, as to reliability, the general estimates of the crops made in these reports. Although we had not made this estimate either with the data or great care bestowed on those of the cereal crops, yet the result is gratifying to us, as doubtless it will be to our correspondents, upon whose returns chiefly the estimate was made.

In that estimate the deficiency in numbers in these States was placed at 806,139 head ; a number close to the proportion of the whole number and loss of corn. It is expected that a fuller statement can be given in the next bi-monthly report.

RELATION BETWEEN THE DISTRIBUTION OF SEEDS AND RAILROAD FREIGHTS

The following letter is interesting as showing the utility of this Department in distributing seeds, especially when the productions of the country change from various causes. It is the duty of the Department to foresee such changes, and provide for them. It is interesting also because it exhibits the necessity of railroads to agriculture, and the almost providential construction of these just prior to the rebellion, and thus opening loyal communication between the west and the east, and without which agriculture and commerce must have been paralyzed.

Mr. W. H. Osborn, president of the Illinois Central railroad, writes as follows :

OFFICE OF THE ILLINOIS CENTRAL RAILROAD COMPANY,
New York, January 30, 1864.

DEAR SIR: You did me the favor last year to send me a large package of tobacco seed, which was carefully distributed in southern Illinois. I am sorry

that I am not in possession of any special report of the out-turn of this seed; but I have no doubt that its distribution has been of great benefit. In our freight statistics for the year we notice large increase in the weight of tobacco forwarded, and it may interest you to see the quantity from various stations, which I annex below:

	Pounds.
Ashley.....	272, 900
Colonia.....	82, 500
Tamaroa.....	315, 560
Du Quoin.....	438, 640
De Soto.....	124, 260
Carbondale.....	4, 254, 000
Makanda.....	420
Jonesboro'.....	577, 370
Cobden.....	430
Dongola.....	220, 910
Ullin.....	4, 450
Pulaski.....	26, 540
Cairo.....	3, 408, 280
Total.....	9, 726, 260

Very respectfully yours,

W. H. OSBORN.

ISAAC NEWTON, Esq.,
Commissioner of Agriculture.

WEIGHTS AND MEASURES.

On the vexed question of what is the weight of an English bushel of wheat, Mr. David Ogden, of New York, sends the Department the following:

"I find on pages 22 and 23 of your last report a letter from C. W. Atkinson, respecting the weight of the English bushel of wheat. He is entirely mistaken in his postscript. Wheat was formerly sold in Liverpool, and is yet in London, at 70 lbs. to the bushel, or at 560 lbs. to the quarter of 8 bushels. I will give you an example. In 1856 I shipped 10,836 bushels of wheat, at 60 lbs. to the bushel; it weighed 650,160 lbs. It was sold in Liverpool for 9,278 bushels, at 70 lbs. to the bushel, and weighed 649,460 lbs. In this country we sell corn at 56 lbs. to the bushel; in England corn is sold at 480 lbs. per quarter of 8 bushels—60 lbs. to the bushel."

But we recur to this subject principally for the purpose of saying that Congress recognizes the importance of acting upon it, for the House of Representatives, at the present session, has added to its standing committees one on weights and measures. The Constitution of the United States confers on Congress the power "to coin money, regulate the value thereof, and of foreign coins, and fix the standard of weights and measures;" but so long as it allows State legislatures to declare how many pounds shall constitute a bushel of any commodity it fails to meet this requirement; for the words that it "shall have power" mean that it must exercise it. And, surely, few subjects of legislation, in times of peace, deserve more speedy or better matured action than this.

THE TABLES OF STOCK FOR JANUARY, 1864.

At this time it is unnecessary to dwell on the tables of farm stock which are published in this report, for in the next one very full and complete tables, showing the number of each kind of stock, and of different ages, their increase in value, and the total value of all, will be presented. It was impossible to estimate them in time for this report, for great care and much labor are required in preparing such tables.

The figures show the *tenths* increase or decrease, from the years stated in the questions. The number 10 represents the stock of these years, and the increase or decrease is in tenths above or below that number. The middle columns, under the heads of horses, mules, cattle, hogs and sheep, show the proportion of these to the whole number; and being most generally three, it shows that the young stock is *three-tenths* of all. The third column of prices are from two to nine-tenths above the prices of 1861—that is, from twenty to ninety per cent. increase.

The returns from our correspondents, from which the tables in this report are compiled, are far more satisfactory than was anticipated from the difficulty in answering the questions proposed, and being the first asked them relative to the stock of the farm. The necessity of such correspondents to the objects of this Department is an absolute one, and too high an estimate of the value of their services cannot be made.

Table of the number, value, &c., of farm stock, for January, 1864.

STATES.	HORSES.			MULES.			CATTLE.			COWS.		
	Average number compared with 1861.	Average number between 2 and 3 years old, compared with the whole number.	Average increase in price since 1861.	Average number compared with 1861.	Average number between 2 and 3 years old, compared with the whole number.	Average increase in price since 1861.	Average number compared with 1861.	Average number under 2 years old, compared with the whole number.	Average increase in price per 100 lbs. since 1861.	Average number compared with 1861.	Average increase in butter in 1863 over 1862.	Average increase in price since 1861.
Maine.....	9	3	12	13	.....	.....	9	3	13	10	11	13
New Hampshire.....	9	3	13	.....	.....	.....	9	5	13	9	9	12
Vermont.....	8	2	14	.....	.....	12	10	3	14	9	11	13
Massachusetts.....	11	2	12	8	5	14	10	3	13	11	10	13
Rhode Island.....	10	2	13	.....	.....	.....	11	2	13	11	.....	12
Connecticut.....	10	2	13	10	.....	15	10	3	13	11	11	13
New York.....	9	2	13	10	3	12	10	3	13	11	11	14
New Jersey.....	10	2	12	10	2	12	10	2	12	10	9	13
Pennsylvania.....	9	3	13	10	3	12	10	3	12	10	10	13
Maryland.....	9	3	12	9	3	12	9	3	12	9	10	13
Kentucky.....	7	2	13	14	5	13	7	3	16	7	11	11
Ohio.....	8	3	13	11	3	13	8	4	12	9	10	14
Michigan.....	9	3	13	13	3	13	10	3	12	10	11	14
Indiana.....	8	3	14	8	4	14	9	3	13	10	11	15
Illinois.....	9	3	13	10	3	13	10	3	15	10	10	15
Missouri.....	7	3	13	6	4	14	7	4	13	9	9	11
Wisconsin.....	11	3	13	13	3	12	12	4	12	12	12	14
Iowa.....	11	3	13	11	3	13	13	4	13	15	12	14
Minnesota.....	13	3	15	16	2	13	13	3	13	13	11	14
Kansas.....	11	3	13	12	5	13	14	3	13	15	13	15
West Virginia.....	.....	3	14	.....	.....	.....	11	3	15	.....	.....	.....
Nebraska Territory...	13	3	14	15	.....	13	15	3	13	14	11	13

Table of the number, value, &c., of farm stock, and of weather, for December and January, 1864.

STATES.	HOGS.			SHEEP.			WEATHER.—WEEKS.									
	Average number compared with January, 1863.	Average number under six months old, compared with the whole number.	Average increase in price per 100 lbs. gross since 1861.	Average number compared with January, 1863.	Average number under ten months old, compared with the whole number.	Average increase in price per head since 1861.	December.					January.				
							Favorable.	Cold.	Dry.	Snow.	Wet.	Favorable.	Cold.	Dry.	Snow.	Wet.
Maine	8	5	13	13	3	17	28	7	8	6	3	27	12	4	3	2
New Hampshire..	9	6	12	13	4	17	19	4	3	4	2	16	7	2	1	4
Vermont	9	6	13	11	3	18	16	6	6	8	4	24	5	3	4	1
Massachusetts...	9	5	14	13	3	16	26	14	1	5	2	18	20	0	4	6
Rhode Island....	8	8	13	10	2	16	9	0	2	0	1	5	4	0	1	1
Connecticut	9	6	12	11	4	17	6	2	0	4	4	7	6	0	4	0
New York	9	5	13	12	3	15	38	27	25	26	26	30	47	13	31	21
New Jersey	9	8	13	12	3	14	19	17	3	1	8	13	18	4	7	4
Pennsylvania ...	8	6	13	12	3 $\frac{1}{2}$	15	48	35	9	18	14	45	54	10	21	17
Maryland	9	6	13	12	3	15	17	5	5	0	5	7	7	0	6	6
Kentucky	10	6	15	11	2	16	2	3	4	0	7	2	11	2	3	0
Ohio	8	6	14	12	3	17	117	17	34	5	46	44	93	4	54	8
Michigan	8	5	15	12	3	19	41	9	5	8	5	25	32	10	6	1
Indiana	8	5	15	13	3	18	84	17	21	9	34	52	76	6	25	6
Illinois	8	6	15	14	3	14	84	19	29	45	27	64	107	5	18	5
Missouri	8	7	15	10	3	18	13	11	8	13	7	11	29	4	3	1
Wisconsin	9	6	14	13	3	18	38	13	12	17	4	22	41	2	9	0
Iowa	10	5	16	20	3	18	67	38	23	50	14	65	78	12	15	2
Minnesota	8	5	18	17	3	16	17	15	21	19	0	27	24	6	8	2
Kansas	10	5	13	15	3	15	6	10	3	8	5	14	14	0	3	0
West Virginia...	11	8	18	0	2	14	1	2	0	1	0	11	2	0	0	0
Nebraska Ter'y...	13	7	16	15	5	17	1	5	1	4	1	3	6	0	0	1

THE WEATHER—ITS EFFECT ON THE FARM.

In every report issued since July, we have had to notice the unusual, severe, and destructive cold that, in every month since June, has occurred in the Mississippi valley. The great degree of cold, and the sudden change of the 31st of December, appears to be one of the same character.

It belongs to the meteorological division of these reports to notice it fully, as seen and noted by the observers of the Smithsonian Institution; but our regular farm correspondents have kindly sent us so many notices of its action on the farm, that we cannot here pass them by. We take up some of them in different States and show *the extent of the cold, its character and destructiveness.*

WISCONSIN, Fond Du Lac county, January 1.—Wind north, extremely cold and blustering; snowed all night, and drifted all day; highways and railroad blockaded; thermometer 35 degrees below zero.

January 2.—Wind northwest; thermometer 38 degrees below zero. The coldest day and hardest storm ever known in Wisconsin.

January 6.—Wind west; slight abatement of the cold; measured the snow; found it 24½ inches on the level.

Mr. Edwin Reynolds, of Metomen, in this county, sends the month of January, thus reported, and we commend his course to all our correspondents. Although we cannot quote his report in full, yet we preserve it for future reference.

ILLINOIS.—Mr. John Hill, of Petersburg, Menard county, sends us the following report from Toulon, in Stark county:

January 1st, 30 degrees below zero.	January 7th, 15 degrees below zero.
“ 2d, 23 “ “	“ 8th, 22 “ “
“ 3d, 18 “ “	“ 9th, 7 “ “
“ 4th, 7 “ “	“ 10th, 3 “ “
“ 5th, 14 “ “	“ 11th, 2 “ “
“ 6th, 21 “ “	

He adds: “500 head of sheep perished under the snow-drifts in Menard county. All young pigs that were not very well protected died, either from the snow drifting or from the cold. Twenty-five per cent. of the sucking calves were lost. Many fat hogs, and those partially so, were smothered beneath the snow or died from their *piling*—that is, piling on top of each other.”

From *Hennipen county*, Mr. William Darley writes: “The peach trees in this county appear to be all killed by the severe cold weather of the first of January. Also some varieties of the apple.”

IOWA.—From *Adams county*, Mr. J. L. Ellis says: “The coldest day was January 1; thermometer 24½ degrees below zero; wind northwest and clear. During the first three days of January the thermometer kept below zero all the time.”

MISSOURI.—Mr. John H. Tice, from St. Louis, adds to his regular report the following: “January 1.—The thermometer sank to 26 degrees below zero on the night of 31st of December, and remained below zero for nearly two weeks. On the morning of 31st it was 16° above. Soon a snow-storm set in, and by three o'clock p. m. the thermometer indicated 10 degrees below zero, with a gale blowing from nearly due west. Stock has suffered severely. Horses, mules, cows and hogs, more or less, have perished in the storm. Our peach trees are killed to the ground. Nearly all our heart-cherries the same. Quinces, fully one-half killed. Pear trees, much damage to tender varieties; young wood nearly all killed. Vineyards badly injured; even the hardy Concord has suffered. I have some dozen varieties; none have escaped injury. No material damage to apple trees. Blackberries and raspberries all killed where not protected by snow-drifts. Here, the wind was one or two points north of west; at Kansas city, it

was due north; in Whitesides county, northern Illinois, it blew from the southwest; and south of St. Louis, from the northwest."

INDIANA.—Mr. Thomas B. Redding, of New Castle, Henry county, after describing the snow-storm and the sudden shifting of the wind from southwest to northwest, says:

"Thermometer at 2 p. m., December 31, 35 degrees above zero. Thermometer at 5 a. m., January 1, 19 degrees below zero; a change of 58 degrees in 15 hours."

The effect on fruit trees he describes as follows: "I have made pretty thorough examination of our trees, and find that nearly all of our peach trees, and large numbers of pear trees, are killed to the snow line. Plum and cherry trees are badly damaged, many being hopelessly killed. Apple trees do not seem to be injured much. Grapes are badly injured in some localities, and probably all vines not protected will require very close pruning. Raspberries and blackberries, where not protected, badly injured. Currants and gooseberries not injured much. Bees have suffered greatly; many stands killed. Stock was generally pretty well provided for. Railroad accidents have been very frequent, causing much damage, and wounding and killing a number."

Like reports from *Randolph* and *Bartholomew* counties are made to the Department. Mr. R. R. Dunihue, of *Martin* county, more south, says: "On the first day of January the mercury ranged from 16 to 24 degrees below zero, and it continued very cold for nearly two weeks, with snow on the ground about a foot in depth." He reports a like destruction of the fruit buds and the trees.

The statements made by the papers are to the same effect; as also reports made to horticultural associations.

OHIO.—The following communication was received and read before the Cincinnati Horticultural Society:

URBANA, January 31.

DEAR SIR: I observe by the published proceedings of the Horticultural Society, that the effects of the intensely cold weather on the first day of the month has been a question of some interest, and that the members have been requested to examine the subject and report the result. I therefore send for your use the character of the weather at Urbana, and what appears to be the condition of some of our fruit.

The barometer indicated a change at 9 o'clock p. m., December 30; at that hour it was 29.06 inches. It fell rapidly till 9 o'clock the next evening, when it stood at an unusually low point—28.12 inches, having fallen very near an inch in twenty-four hours. The mercury then rose rapidly till it reached 29.20 inches at 9 p. m., January 1st, the whole rise being 1.08 inch.

Rain commenced falling on the morning of the 31st, continuing moderately all day; at 9 p. m. it changed to snow; the quantity of snow was $\frac{3}{4}$ of an inch; and the rain, including the snow melted, was the 4-5 of an inch.

The thermometer on Thursday, 9 p. m., was 34 degrees, and it was at this time that the rapid change began. On the morning of January 1, the thermometer was 11 degrees below zero; at noon it was 9 below; at 9 p. m. it was 14 below. The branches of trees and shrubbery were covered with ice and snow.

This morning (January 1) I made the following entry in my register:

"The sudden and extreme change in the weather since last evening has no doubt done great damage to fruit trees and tender shrubbery. The peach trees have probably been killed; they have been destroyed heretofore when appearances were more favorable. The mean temperature to-day is $11\frac{1}{3}$ degrees below zero; yesterday it was $37\frac{1}{3}$ degrees above zero, making the difference of the two days $48\frac{2}{3}$ degrees. This is a greater change in so short a time than I have ever observed. The sleet frozen on the branches would be unfavorable to safety of buds."

I have since examined the peach, cherry, pear and apple trees, and I find all my fears fully confirmed.

The peach buds are all killed; also all the young growth of wood; and there is a strong probability that the trees are killed down to the ground.

Of the cherry trees, the fruit buds are all killed; also the twigs of last year's growth, and many of the leaf buds, appear to be injured, or destroyed.

The fruit buds of the pears are destroyed; and the young twigs and many of the leaf buds are injured.

The buds of the apple trees have a sickly appearance, and some of them are certainly killed.

I am not yet satisfied as to the extent of injury done to raspberries and blackberries. But the question of our crop of the large fruits in this section for the coming season is, I think, settled—we shall have no peaches, pears or cherries, but we may have some apples if they are not destroyed hereafter.

I am, very truly, yours,

M. G. WILLIAMS.

D. B. PIERSON, Esq.,

President Cincinnati Horticultural Society.

KENTUCKY.—Mr. William Johnson, of *Bardstown*, writes: "On the night of December 31 it turned suddenly cold; the thermometer suddenly sunk upwards of 50 degrees that night; and next morning at 8 o'clock, it stood at 8 degrees below zero. I have examined some few peach buds on my place, and so far have found none that are alive."

From *Cynthiana*, Mr. J. Q. Ward says: "On the 31st of December we had a very warm day, with moderate rain. That night within the space of twelve hours the thermometer fell 54 degrees, and during the 1st, and for two weeks continually, it was from 10 degrees below to 15 degrees above zero. The most remarkable spell of weather ever witnessed in this latitude."

In former reports, notice was particularly made of the difference between the climate of the Mississippi valley and east of the mountains. The same difference is again to be seen in the cold of the 1st of January. We have just seen that in Kentucky it was 8 and 10 degrees below zero. But in Massachusetts it was as follows, although so much further north:

MASSACHUSETTS.—Mr. Chs. Beck, of *Milton*, states that the thermometer was highest on the 1st and 25th of January, at 50 degrees, and lowest on the 2d and 7th, at 2 degrees.

PENNSYLVANIA.—At *Marietta*, Mr. H. M. Eugle kindly sends a record of the month of January, from which it appears that the lowest degree was on the 7th, being 1 above zero. On the 1st it was 54; on the 2d, 3 degrees above.

At *Easton*, Northampton county, from a nicely drawn diagram of the month of January, by Mr. Clemens, we see that the coldest day was the 2d, when the thermometer fell to 8 degrees above zero.

It will be seen that a snow-storm accompanied this remarkable change of weather, and hence the crops of wheat, rye, and barley have escaped injury.

The January cold in Europe.

Both papers and letter-writers from Europe mention the unusual cold experienced in the first part of January. Mr. *Davisson*, American consul at Bordeaux, in the south of France, writes thus: "Floriculture is brought to perfection here, but the climate is well adapted to it. Roses bloom all winter in the open air, except now, for we are having the first really cold spell and freeze for twelve years." In *England* the plough was stopped for three or four days—a most unusual circumstance. At *Frankfort-on-the-Main*, the cold is alluded to as being unusually severe. Indeed the north pole seems to have spread itself out in every direction.

THE FALL OF RAIN IN ENGLAND.

The high condition of English agriculture, the sameness in language, and the mutual trade between England and the United States, lead to much study of its agriculture here. Without taking into consideration the great difference in climate, especially of the *amount* and *times* of its rain, writers here, looking only to the results of English agriculture, draw conclusions from them, and through these give counsel to American farmers, that almost inevitably ends in disappointment.

The English climate is made by the Gulf stream, which carries with it heavy fogs and dews, with a less but more uniform quantity of rain than falls in the United States. Our droughts, and extremes of heat and cold, are unknown to Great Britain. It has no regular periods in the year when drought is to be expected, as here; this is seen in the tables. The months, at all times, vary a good deal, but usually enough rain falls in any two for the purposes of vegetation. There the amounts that fall are well distributed; here much may fall; yet the distribution is often so unfavorable that, whilst the month may show a good fall in quantity, it yet suffers much from drought.

The following table of the fall of rain near London, for a series of years, will be interesting for comparing the rain-fall of the two countries:

Annual depth of rain at Chiswick, near London, England, in inches and tenths of inches, in the years 1841 to 1863, inclusive.

1841—1852.

Months.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	Average of 12 years.
January.....	2.60	1.06	1.33	2.25	2.97	2.85	1.31	1.16	1.73	1.43	3.07	2.72	2.04
February.....	0.76	1.32	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.95	0.90	1.06	1.58
March.....	1.32	1.81	0.47	2.44	1.25	1.09	0.41	3.05	0.85	0.13	3.57	0.25	1.39
April.....	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.65	0.52	1.56
May.....	2.16	1.73	5.26	0.25	2.89	1.35	1.59	0.38	3.53	1.84	0.74	1.71	1.65
June.....	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	1.75
July.....	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.90	2.28	2.30
August.....	2.69	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	3.71	2.70
September.....	3.71	3.39	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.36	0.42	3.54	2.13
October.....	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.93	2.18	1.55	2.01	3.87	2.99
November.....	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.32	2.03	0.55	6.20	2.49
December.....	2.12	0.76	0.58	0.39	2.61	1.21	1.81	2.03	1.28	1.15	0.62	1.97	1.38
Annual amount..	30.97	22.27	25.48	21.31	23.33	27.71	16.65	28.34	22.84	18.28	20.70	32.55	24.26

1853—1863.

Months.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	Average of 11 years.	Average of 23 years.
January.....	2.14	1.92	0.10	1.76	2.09	0.41	0.61	2.18	0.82	1.53	2.19	1.31	1.68
February.....	0.59	0.78	1.35	0.62	0.31	1.48	1.31	1.20	1.41	0.38	0.26	0.81	1.19
March.....	1.48	0.42	1.75	0.97	0.73	0.88	0.77	1.63	1.89	3.74	0.68	1.25	1.32
April.....	2.58	0.30	0.26	1.97	1.77	2.13	2.01	0.95	1.44	2.29	0.54	1.35	1.46
May.....	1.60	4.03	1.94	4.38	0.87	2.05	1.80	3.04	1.31	3.54	1.46	2.17	2.06
June.....	2.54	1.53	1.48	0.88	1.91	0.78	3.10	5.15	2.35	2.33	4.46	2.21	1.98
July.....	4.17	2.40	6.30	1.43	1.22	2.55	2.18	2.72	1.90	2.09	0.80	2.31	2.30
August.....	1.87	1.77	1.45	3.50	2.80	1.46	2.49	4.16	0.50	2.40	1.96	2.03	2.37
September.....	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.47	2.13	2.13
October.....	3.78	2.61	6.15	2.40	4.01	1.36	2.55	1.60	1.04	3.00	1.56	2.51	2.75
November.....	0.91	1.31	1.34	0.94	1.53	0.10	2.72	2.60	4.10	1.01	1.68	1.52	2.00
December.....	0.30	1.27	1.11	1.88	0.30	1.53	1.95	2.03	0.94	1.49	1.26	1.17	1.28
Annual amount..	24.37	18.92	24.38	22.72	21.06	15.78	25.54	30.08	19.48	26.54	20.32	20.77	22.52

Monthly maximum in 23 years, July, 1855.....	6.30
Monthly minimum in 23 years, { January, 1855.....	0.10
November, 1858.....	0.10
Yearly maximum in 23 years, 1852.....	32.55
Yearly minimum in 23 years, 1858.....	15.78
Greatest monthly average in 23 years, October.....	2.75
Least monthly average in 23 years, February.....	1.19

METEOROLOGICAL REPORT.

As intimated in the report for November, the depression of temperature which prevailed in the end of that month did not reach its minimum, in the States towards the Atlantic, till the beginning of the following month; and in illustration of this, and for the purpose of connecting the two months, we give here a few notes from the registers of some of those States for December. Throughout New England, the lowest temperature of this depression was on the 3d. In Maine, it was 7° at West Waterville; at Williamsburg, 4° ; Lisbon, 13° ; Cornishville, 8° ; Steuben, 6° . In New Hampshire, at Claremont, 10° ; Littleton, 6° ; North Littleton, 2° ; Stratford, 4° . In Vermont, at Brandon, 9° ; Lurenborg, 5° ; Craftsbury, 3° ; Burlington, 9° ; Rutland, 12° . In Massachusetts, New Bedford, 18° ; Sandwich, 16° ; Mendon, 13° ; Amherst, 16° ; Williamstown, 12° ; Baldwinsville, 6° ; Topsfield, 18° ; Westfield, 17° . The above stations are those for which the minimum was given in the table for November; and they are arranged in the same order, for the convenience of comparison. At nearly all the stations, the temperature of the 2d day of December was much higher than that of either the 1st or the 3d; and, at some of them, it is doubtful which day to select as the culmination of the cold, whether the 1st or the 3d, though at all of them the 3d was colder than either of the other two. It often happens that fluctuations of temperature occur which interrupt its gradual descent, the thermometer rising suddenly, and, within twenty-four hours, falling again even lower than before, thus interposing, between two cold days, one much warmer.

After the 3d there was another rise, and about the 7th the temperature fell again yet lower. It increased again on the 9th; and on the 11th was lower than on any previous day, and at some stations reached the minimum of the month. After these fluctuations, which prevailed to some extent in the western States as well as the eastern, the warmest day of the month occurred in the States east of Ohio; further west, there was a warmer day earlier in the month, as may be seen by referring to the table of maxima and minima for December.

We are able this month to make use of the valuable observations taken at various stations on the lakes, under the direction of Colonel Graham, Superintendent of the Lake Survey. Copies of these registers have been received, for several years, by the Smithsonian Institution; but they come several months together, in large packages, by express, and therefore not in time to be used in the preparation of these reports.

The lowest temperature recorded on the registers which have been received is 32 degrees below zero, at Forest City, in Minnesota. The station which gives the lowest mean temperature of the month is North Littleton, New Hampshire, 11.2 degrees. At St. Paul, Minnesota, and some other places in the west, as shown by the summaries inserted at the end of this month, the thermometer was lower in February, 1863, than in December.

We began to prepare for this number a table giving the lowest temperatures which have been observed at various places throughout the United States and British America, but found it impossible to get it ready in time. Such a table would be useful for reference, whenever a day occurs (as it often does) which is said to be "colder than was ever known before." While collecting materials for this table our attention was called to two instances of the power of the human system to endure cold, which may be interesting in connexion with the experience of many persons in the western States who were exposed only for a short time to the low temperature of the last day of December. Captain Ross,

in the narrative of his second voyage, mentions that, on the 5th of February, 1830, an Esquimaux woman took her infant out of the bag in which it was carried and exposed it naked to the air at the breast with the thermometer 40° below zero. Captain McClintock, in his voyage of the Fox, relates a similar incident. He says: "Esquimaux mothers carry their infants on their backs within their large fur dresses, and where the babes can only be got at by pulling them out over the shoulder. Whilst intent upon my bargaining for silver spoons and forks belonging to Franklin's expedition at the rate of a few needles or a knife for each relic, one pertinacious old dame, after having obtained all she was likely to get from me for herself, pulled out her infant by the arm, and quietly held the poor little creature (for it was perfectly naked) before me in the breeze, the temperature at the time being 60° below freezing point [28° below zero.] Peterson informed me that she was begging for a needle for her child. I need not say I gave it one as expeditiously as possible; yet sufficient time elapsed before the infant was again put out of sight to alarm me considerably for its safety in such a temperature. The natives, however, seemed to think nothing of what looked to me like cruel exposure of a naked baby."

The principal feature of December, and one which necessarily attracted very general notice, was the intense cold and severe snow-storm which prevailed at the west on the last few days of the month, and extended in the beginning of January, though with less severity, to the Atlantic States. The western papers at the time were crowded with painful and distressing evidences of the severity of the storm. The roads were blocked up by the snow, and for several days all travelling was interrupted, and there was no mode of conveying either mails or passengers; great numbers of cattle perished with the cold, and in many places men were severely frost-bitten, and some even frozen to death. In the *Prairie Farmer*, of February 6, a writer giving an account of the loss of two hundred and fifty of his sheep, says that, "nine years ago the 20th of January we had just such a storm, except it was not, I think, so cold." The tables for December and January give the minimum temperature during the storm. The duration of the cold, and other materials with regard to it, will be inserted in the next number. This storm presents the same general characteristics as all those great atmospheric movements which are sweeping over our continent season after season, and century after century, and which follow one another as unceasingly and as unchangeably as wave follows wave over the bosom of the sea. Since the mountains and the dry land of the continent, and the waters which surround it, were formed as they now stand, the course of these storms has, probably, not changed; and while nothing seems so fitful and uncertain as drought and moisture, heat and cold, calms and storms, yet they must be subject to laws as fixed and invariable as those which steady the earth in its ever-onward and ever-revolving motion, and keep its surface and its atmosphere ever exposed to the controlling power of the sun. These laws we now know only in part; but every observer who is accurately though quietly recording the course of the wind, and the changes of temperature and moisture, is contributing to that storehouse of materials which will reward another generation with clear and definite perceptions of what we already know to exist, but can as yet see only in dim and shadowy outline.

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of December, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this December compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for December, 1863, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

TEMPERATURE AND RAIN OF DECEMBER, 1863.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Lisbon	Androscoggin.....	Asa P. Moore.....	4	48	22	— 7	23.3	4.50
West Waterville.....	Kennebec	B. F. Wilbur	5	51	21	— 2	22.7	0.12
Cornishville	York	G. W. Guptill	5	47	22	— 2	22.4	4.29
North Perry.....	Washington	Wm. D. Dana	13	56	11	— 4	20.8	3.70
Steuben	do	J. D. Parker	13	49	21	— 2	22.5	4.81
Williamsburg.....	Piscataquis.....	Edwin Pitman	2, 14	42	11	— 6	18.6	5.84
NEW HAMPSHIRE.								
North Littleton.....	Grafton	Rufus Smith.....	14	39	11	—19	11.2	1.15
Littleton	do	Robert C. Whiting..	14	46	11	—10	19.6	3.39
Plymouth	do	J. S. Ryan			22	— 2		
Stratford	Coos	Branch Brown.....	14	46	11	—14	16.5	3.75
Claremont	Sullivan.....	Arthur Chase.....	4	48	10, 11	— 2	22.0	5.75
VERMONT.								
Rutland	Rutland.....	Stephen O. Mead...	13	52	25	8	27.5	
Brandon	do	David Buckland	13, 14	49	11	2	23.9	3.84
Lunenburg	Essex	Hiram A. Cutting...	14	48	11	— 8	18.8	5.15
Craftsbury	Orleans	James A. Paddock..	4	43	10	— 8	17.0	3.70
Burlington	Chittenden	McK. Petty	4	45	10	— 4	20.3	3.96
MASSACHUSETTS.								
New Bedford.....	Bristol.....	Samuel Rodman....	14	55	11	10	31.9	5.57
Amherst	Hampshire	Prof. E. S. Snell....	14	52	23	3	25.3	5.87
Topsfield.....	Essex	John G. Caldwell....	13	54	21	6	29.3	3.85
Mendon	Worcester	John G. Metcalf....	13	52	22	5	26.7	2.20
Baldwinsville.....	do	Rev. E. Dewhurst..	14	47	23	— 6	22.8	3.66
Sandwich	Barnstable.....	N. Barrows, M. D....	18	56	10, 21	10	31.6	4.46
Williamsville	Berkshire.....	Prof. A. Hopkins....	13	49	11	1	24.5	4.13
Springfield	Hampden.....	J. Weatherhead.....	4	52	11	1	25.5	4.43
Westfield	do	Rev. E. Davis.....	4	50	23	4	25.3	5.83
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell....	4	53	10, 22	8	28.5	5.66
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt.....	13	52	11	3	26.6	5.10
New Haven	New Haven	D. C. Leavenworth..	14	55	23	5	29.0	

Temperature and rain of December, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Fishkill Landing.....	Dutchess.....	Wm. H. Denning....	13	55	23	8	28.4	3.98
Throg's Neck, L. I..	Westchester.....	Francis Morris.....	13	54	23	10	32.0	4.19
Skaneateles.....	Onondaga.....	W. M. Beauchamp....	14	49	23	— 1	26.2	.....
Seneca Falls.....	Seneca.....	Philo Cowing.....	14	52	23	6	28.9	.....
New York.....	New York.....	Prof. O. W. Morris....	13	59	23	15	36.1	5.06
Oswego.....	Oswego.....	William S. Malcolm....	4	49	10	6	27.2	5.55
New York Observ'ty	New York.....	Charles C. Wakeley....	14	56	23	13	33.9	4.41
South Hartford.....	Washington.....	G. M. Ingalsbee.....	13	47	10	— 1	24.5	3.23
Fort Ann.....	do.....	P. A. McMore.....	5	55	25	0	30.5	3.57
Gouverneur.....	St. Lawrence.....	C. H. Russell.....	14	52	10	— 7	29.4	3.31
Jamesstown.....	Chautauque.....	Rev. S. W. Roe, M.D..	8	74	24	1	33.6	6.38
Fredonia.....	do.....	Daniel J. Pratt, A.M..	13	59	24	7	31.5	3.13
Buffalo.....	Erie.....	William Ives.....	4	49	24	5	30.0	2.45
South Trenton.....	Oneida.....	Storrs Barrows.....			25	— 20		2.25
Clinton.....	do.....	Dr. H. M. Paine.....	13, 14	51	22	— 1	26.7	4.56
Theresa.....	Jefferson.....	S. O. Gregory.....	14	50	23, 25	— 2	29.7	3.45
Rochester.....	Monroe.....	Prof. C. Dewey.....	4	53	25	7	28.7	1.98
Do.....	do.....	Dr. M. M. Mathews....	4	53	25	8	28.6	2.63
Auburn.....	Cayuga.....	John B. Dill.....	4, 14	46	23	2	27.2	.....
White Plains.....	Westchester.....	Oliver R. Willis.....	13, 14	54	23	8	30.0	.....
NEW JERSEY.								
Passaic Valley.....	Passaic.....	William Brooks.....	13	55	23	2	29.0	3.86
Mount Holly.....	Burlington.....	M. J. Rhees, M.D.....	13	60	23, 25	15	33.9	.....
Newark.....	Essex.....	W. A. Whitehead.....	13	55	24	13	31.3	5.00
PENNSYLVANIA.								
Nazareth.....	Northampton.....	L. E. Ricksecker.....	13	57	23	10	33.1	.....
Tioga.....	Tioga.....	E. T. Bentley.....	13, 14	58	23, 24	8	30.3	.....
Fleming.....	Center.....	Samuel Brugger.....	4	56	24	6	.....	.....
Oil City.....	Venango.....	James A. Weeks.....	4	51	24	4	31.7	.....
Silver Spring.....	Lancaster.....	H. G. Bruckhart.....	13	60	25	10	33.0	.....
Philadelphia.....	Philadelphia.....	Pf. J. A. Kirkpatrick..	14	60	23	16	34.9	4.89
Berwick.....	Columbia.....	John Eggert.....	15	73	26, 28	31	49.5	2.91
Harrisburg.....	Dauphin.....	John Heiseley, M.D..	13	55	23, 25	19	33.4	6.81
Canonsburg.....	Washington.....	Rev. W. Smith, D.D..	12	56	24	9	32.3	1.49
Pittsburg.....	Allegheny.....	Prof. Dr. R. Mueller....	12	59	24	6	34.0	6.06
MARYLAND.								
Sykesville.....	Carroll.....	Miss Harriett M. Baer..	13	60	25	8	32.0	5.30
St. Mary's City.....	St. Mary's.....	Rev. J. Stephenson....	12, 13, 14	58	25	20	38.6	3.50
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Inst'n....	13	57	25, 26	18	35.4	3.71
SOUTH CAROLINA.								
Beaufort.....	Beaufort.....	Dr. M. M. Marsh.....	17	66	20	28	48.0	.....
KENTUCKY.								
Louisville.....	Jefferson.....	Mrs. L. Young.....	3, 4, 5	58	20	9	38.9	4.54
OHIO.								
Cincinnati.....	Hamilton.....	G. W. Harper.....	4, 13	58	20	10	37.0	3.80
College Hill.....	do.....	John W. Hammitt.....	4	56	20	6	35.7	7.45
Do.....	do.....	I. H. Wilson.....	4	56	20	6	36.6	8.00
Hillsborough.....	Highland.....	J. McD. Mathews.....	13	56	20	10	36.0	3.83
Westerville.....	Franklin.....	Pf. H. A. Thompson....	12	56	24	4	33.5	3.11
Urbana.....	Champaign.....	Prof. M. G. Williams....	4, 13	55	20	3	32.9	4.55
Portsmouth.....	Scioto.....	L. Engelbrecht.....	12, 13	59	20	18	39.3	3.22

Temperature and rain of December, 1863—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
OHIO.								
Welshfield.....	Geauga.....	B. F. Abell, A.M....	4, 13	53	24	9	32.3	3.97
East Fairfield.....	Columbiana.....	S. B. McMillan.....	12, 13	53	24	8	32.8	5.06
New Lisbon.....	do.....	J. F. Benner.....	12	68	24	10	34.0	4.21
Rockport.....	Cuyahoga.....	Edward Colbrunn....	4	55	19	19	36.0	.....
Cleveland.....	do.....	Mr. & Mrs. G. A. Hyde	13	57	24	13	36.0	2.24
Bowling Green.....	Wood.....	W. R. Peck, M.D....	4	60	24	8	36.2	2.94
Kingston.....	Ross.....	Prof. Jno. Haywood..	13	57	20	11	36.0	3.65
Austinburg.....	Ashtabula.....	Dole & Griffing.....	4	55	24	— 4	31.0	4.40
Kelley's Island.....	Erie.....	Geo. C. Huntington..	3	51	20	16	34.4	2.96
Eaton.....	Preble.....	Miss Ollittippa Larsh.	13	56	20	3	32.3	.....
MICHIGAN.								
Monroe City.....	Monroe.....	Florence E. Whelpley	4	53	23	16	33.4	0.07
Lansing.....	Ingham.....	Prof. R. C. Kedzie..	4	49	6	10	30.3	2.19
INDIANA.								
Spiceland.....	Henry.....	William Dawson.....	4	55	20	1	33.3	2.71
Muncie.....	Delaware.....	E. J. Rice.....	12, 13	56	20	— 4	33.9	4.80
Rockville.....	Park.....	Miss M. A. Anderson..	3	55	19	— 2	34.8	2.30
New Albany.....	Floyd.....	Dr. E. S. Crozier ..	5	61	19	14	38.6	5.19
South Bend.....	St. Joseph.....	Reuben Burroughs..	3	60	20	— 6	30.6	4.20
Newcastle.....	Henry.....	T. B. Redding, A.M..	4	58	20	1	34.9	4.15
New Harmony.....	Posey.....	Jno. Chappellsmith ..	4	59	31	5	38.1	3.10
ILLINOIS.								
Peoria.....	Peoria.....	Frederick Brendel ..	3	59	19	— 8	32.3	4.90
Upper Alton.....	Madison.....	Mrs. Anna C. Tribble..	4	57	31	—11	33.2	7.50
Galesburg.....	Knox.....	Prof. W. Livingston..	3	57	31	—20	25.1	2.58
Pekin.....	Tazewell.....	J. H. Riblett.....	3	59	19, 31	— 8	31.5	6.19
Ottawa.....	La Salle.....	Emily H. Merwin....	3	56	31	—12	27.1	2.20
Waverley.....	Morgan.....	Timothy Dudley.....	3	58	31	—14	31.5	7.85
Winnebago.....	Winnebago.....	J. W. Tolman.....	3	48	31	—10	25.8	5.97
Tiskilwa.....	Bureau.....	Verry Aldrich.....	3, 8	54	31	—10	25.0	.....
Augusta.....	Hancock.....	S. B. Mead.....	3	60	31	—18	28.5	9.03
Du Quoin.....	Perry.....	Charles Ziegler.....	4, 13	56	19	4	38.5	3.30
WISCONSIN.								
Weyanwega.....	Waupaca.....	William Woods.....	2	50	31	— 5	25.3	2.85
Milwaukee.....	Milwaukee.....	J. A. Lapham, L.L.D.	4	57	20	— 2	29.2	6.25
Madison.....	Dane.....	Prof. J. W. Sterling..	.....	.....	31	—15	.....	.....
Manitowoc.....	Manitowoc.....	Jacob Lüps.....	3	45	20	0	29.3	3.85
Beloit.....	Rock.....	Henry D. Porter.....	3, 8	45	31	— 7	26.5	5.38
MISSOURI.								
Laborville.....	St. Louis.....	.....	4	55	31	—10	34.7	.....
Harrisonville.....	Cass.....	John Christian.....	1, 6	54	31	—14	29.9	.....
Canton.....	Lewis.....	George P. Ray.....	3	62	31	—17	28.7	5.34
St. Louis.....	St. Louis.....	A. Fendler.....	.....	.....	31	— 4	.....	.....
IOWA.								
Lyons.....	Clinton.....	P. J. Farnsworth, M.D.	4	50	31	—10	28.4	7.35
Muscatine.....	Muscatine.....	I. P. Walton.....	3	55	31	—18	27.0	7.72
Do.....	do.....	Suel Foster.....	3	48	31	—22	23.6	7.80
Iowa City.....	Johnson.....	Pr. T. S. Parvin, A.M.	3, 6	53	31	—23	27.0	2.50
Iowa Falls.....	Hardin.....	Nathan Townsend ..	4	42	31	—20	.....	.....
Independence.....	Buchanan.....	A. C. Wheaton.....	3	50	31	—20	23.7	5.27
Algona.....	Kossuth.....	Dr. & Miss McCoy....	2	46	31	—20	21.8	2.54
Fort Madison.....	Lee.....	Daniel McCready....	3	59	19, 31	—12	29.3	5.68
Pleasant Plain.....	Jefferson.....	T. McConnel.....	3	58	31	—20	27.0	3.80
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	3	46	19, 31	—13	24.9	6.56

Temperature and rain of December, 1863.—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MINNESOTA.								
St. Paul.....	Ramsey.....	Rev. A. B. Paterson.	3	° 45	31	° —28	° 20.6	<i>In.</i> 1.31
NEBRASKA.								
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton	6	53	31	—20	25.4	3.85
Fontenelle.....	Washington.....	John Evans.....	3, 22	41	31	—28	18.4	2.90
COLORADO.								
Montgomery.....	Park.....	James Luttrell.....	8	57	16, 30	—10	20.6	4.31
KANSAS.								
Lawrence.....	Douglass.....	W. L. G. Soule.....	3	60	31	—16	29.1	5.58
Fort Riley.....	Davis.....	Elford E. Lee.....	4	62	31	—12	28.6	3.42
Manhattan.....	Riley.....	H. L. Denison.....	6	57	31	—13	25.7	2.97

After the foregoing table had been prepared for the press, we received reports of observations made under the superintendence of Colonel James D. Graham, corps of engineers for the survey of the northern and northwestern lakes. From these we extract the following :

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Sackett's Harbor....	Jefferson.....	Henry Metcalf.....	13, 14	° 51	10	° 2	° 26.2	<i>In.</i> 4.50
Charlotte.....	Monroe.....	Andw. Mulligan....	4	55	25	9	30.2	1.78
Fort Niagara.....	Niagara.....	L. Leffman.....	4	54	10	13	30.0	4.50
Buffalo.....	Erie.....	Edward Dorr.....	4	50	24	6	30.1	1.16
OHIO.								
Cleveland.....	Cuyahoga.....	Benj. A. Stanaul...	4	58	24	9	33.7	3.71
MICHIGAN.								
Monroe City.....	Monroe.....	John Lane.....	3	55	24	9	32.3	2.20
Detroit.....	Wayne.....	C. P. Rabout.....	4	51	24	14	32.4	2.43
Tawas City.....	Iosco.....	Chs. H. Whittemore.	4	43	24	5	27.7	3.02
Sugar Island.....	Chippewa.....	J. W. Church.....	1	40	20	—12	19.0	0.19
Ontonagon.....	Ontonagon.....	Henry Selby.....	1, 3	42	31	2	23.5	1.97
WISCONSIN.								
Superior.....	Douglass.....	Eber H. Bly.....	1	43	15, 19	—15	20.0	1.37

Notwithstanding the extreme cold which prevailed in the west on the last two or three days of December, the table of general means which follows shows that the mean temperature of the month in those States was generally above that of the average of December for a series of years.

Table showing the average temperature and fall of rain (in inches and tenths) for the month of December, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1863.	
		Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	6	25.7	4.50	20.5	3.80	26.5	4.55	19.8	3.10	16.5	5.87	21.8	4.36	21.7	3.88
New Hampshire	4	26.8	5.40	17.7	3.09	28.7	4.32	17.7	2.85	17.7	4.49	21.7	4.03	17.3	3.51
Vermont	4	24.6	2.50	16.9	2.31	27.1	3.35	19.4	2.40	16.3	2.92	20.9	2.70	21.5	4.16
Massachusetts	12	30.3	5.81	24.6	4.21	33.0	5.18	29.1	3.84	25.1	4.97	28.4	4.80	26.9	4.44
Rhode Island	1	32.2	6.10	25.5	5.80	34.6	5.20	32.1	3.45	28.4	3.45	30.5	4.80	28.5	5.66
Connecticut	5	32.0	6.33	26.8	5.90	38.2	6.81	29.2	3.70	25.6	3.48	30.3	5.24	27.8	5.10
New York	18	29.1	3.45	25.1	3.38	33.1	3.98	29.2	3.28	23.5	3.86	28.0	3.59	28.7	3.76
New Jersey	4	34.3	5.10	30.9	3.56	35.9	5.42	34.0	4.20	30.8	4.33	33.1	4.52	31.4	4.43
Pennsylvania	20	30.7	4.85	28.4	2.86	36.6	4.85	34.8	1.48	29.1	3.97	31.9	3.60	34.7	4.43
Maryland	5	35.4	1.14	31.2	2.75	38.8	5.94	38.1	3.95	33.4	3.69	35.4	3.49	35.3	4.40
District of Columbia	1	37.1	3.20	31.8	2.34	.....	5.54	39.9	5.79	34.6	6.22	35.8	4.62	35.4	3.71
Kentucky	4	36.4	3.29	30.2	4.45	42.4	5.75	43.4	7.87	30.5	6.64	36.6	5.60	38.9	4.54
Ohio	20	31.6	3.71	24.7	3.33	37.1	3.52	36.7	5.10	25.6	4.25	31.1	3.98	35.0	4.23
Michigan	8	25.5	3.49	21.0	3.28	31.5	1.65	30.1	2.14	20.0	2.53	25.6	2.61	31.9	1.13
Indiana	4	31.7	2.45	28.8	3.25	37.4	2.23	39.2	5.99	26.8	4.30	32.8	3.64	34.9	3.78
Illinois	14	26.6	3.64	22.0	4.19	34.7	1.42	30.6	2.98	18.1	1.58	26.4	2.76	29.9	5.50
Missouri	3	32.1	3.10	29.8	4.29	40.0	2.58	38.3	8.52	24.5	2.42	32.9	4.18	31.1	5.34
Wisconsin	10	19.5	2.23	15.6	4.08	29.9	2.27	24.0	2.04	14.0	0.87	20.6	2.29	27.6	4.58
Iowa	7	20.2	2.09	15.2	4.50	31.4	1.27	23.9	1.90	15.2	0.58	21.2	2.07	25.9	5.47
Minnesota	4	9.9	1.25	4.9	.....	23.4	1.44	14.7	1.34	5.9	0.64	11.8	1.17	20.6	1.31
Nebraska Territory	3	.....	.....	.....	.....	32.1	0.80	20.1	0.89	15.0	0.46	22.6	0.72	21.9	3.37
Kansas	3	.....	.....	.....	.....	37.8	0.22	29.9	1.18	21.9	0.18	29.9	0.53	27.8	3.99
California	3	.....	0.00	43.9	2.40	49.6	2.48	45.6	5.47	45.8	2.87	46.2	2.64	.....	.....

In previous numbers of these reports we have given tables showing the progress of atmospheric changes in their general movement from the far west to the Atlantic coast and even out on to the ocean; we now give below a table showing the temperature on one day over all parts of the country from which registers have been received. Christmas day has been selected as one on which the weather is generally noticed and remembered, and also on account of its having occurred but a few days before the beginning of the severe cold and snow storm which was so destructive at the west in its effect upon animal life as well as upon vegetation. The table shows that east of Ohio the day was clear and cold, the temperature being below freezing; that to the west it was cloudy and warmer, and in the States further west there was snow and rain during all or part of the day. There was but little wind in any part of the country.

Weather on Christmas day, 1863.

Station.	Temperature.				Remarks.
	7 a. m.	2 p. m.	9 p. m.	Mean.	
NEW BRUNSWICK.					
Saint John.....	Deg. 15.0	Deg. 18.0	Deg. 11.0	Deg. 14.7	Clear; very light breeze from N.
MAINE.					
West Waterville.....	19.0	30.0	20.0	23.0	Clear, calm. Clear; gentle breeze from N. Clear; very light breeze from W. Clear; gentle breeze from N. Cloudy; gentle breeze NE.; lunar halo at 9 p. m. Splendid; wind N.
Williamsburg.....	5.0	24.0	15.0	14.7	
Lisbon.....	10.0	32.0	18.0	20.0	
Cornishville.....	14.0	26.0	20.0	20.0	
Perry.....	14.0	20.0	12.0	15.3	
Steuben.....	12.0	22.0	16.0	16.7	
Belfast.....		28.0			
NEW HAMPSHIRE.					
Claremont.....	6.0	20.0	13.0	13.0	Clear; very light breeze N.
Littleton.....	4.0	20.0	6.0	7.3	Clear; very light breeze NW.
North Littleton.....	11	15.0	0.0	1.3	Clear; gentle southerly breeze.
Stratford.....	0.0	20.0	9.0	9.7	Clear; very light southerly breeze.
VERMONT.					
Brandon.....	4.0	22.0	12.0	12.7	Clear, calm.
Lunenburg.....	5.0	15.0	10.0	10.0	Clear; very light breeze W.
Craftsbury.....	0.0	17.0	7.0	8.0	Clear; very light breeze NE.
Burlington.....	1.0	18.0	9.0	8.7	Clear; very light breeze N., changing to S.
Rutland.....	8.0	26.0	8.0	14.0	Clear; wind NW.
MASSACHUSETTS.					
New Bedford.....	17.0	32.0	24.5	24.5	Clear; gentle breeze N.
Mendon.....	12.0	25.0	21.0	19.3	Clear; gentle breeze SW.
Amherst.....	12.7	24.0	18.0	18.2	Clear; gentle breeze NW.
Boston.....					Clear and fine; very light breeze NW.
Williamstown.....	5.0	18.5	10.0	11.2	Clear; very light breeze NW.
Baldwinsville.....	2.0	23.0			Clear; gentle breeze NW.
Topsheld.....	16.0	30.0	24.0	23.3	Clear; very light breeze NW.
Sandwich.....	20.5	30.5	22.0	24.3	Cloudy; gentle breeze NW.
Westfield.....	10.0	24.0	16.0	16.7	Clear; wind NW.
RHODE ISLAND.					
Providence.....	18.0	29.0	22.0	23.0	Clear; very fine; gentle northerly breeze.
CONNECTICUT.					
Pomfret.....	13.3		20.0		Clear; gentle breeze N.
New Haven.....	13.0	29.0	23.0	21.7	Clear; very light breeze N.
NEW YORK.					
New York, 175 2d avenue.....		30.5	25.0		Clear; gentle breeze N.
New York, institution deaf and dumb.	21.0	34.0	31.0	28.7	Clear; very light breeze NW.; lunar halo very large and distinct.

Weather on Christmas day, 1863—Continued.

Station.	Temperature.				Remarks.
	7 a. m.	9 p. m.	9 p. m.	Mean.	
	Deg.	Deg.	Deg.	Deg.	
Oswego.....	7.0	22.0	17.0	15.3	Clear; gentle breeze S.
Auburn.....	12.0	24.0	16.0	17.3	Clear; wind S.
Gouverneur.....	2.0	16.0	10.0	8.0	Clear, calm.
Fredonia.....	20.0	27.8	26.6	24.8	Clear; gentle southerly breeze.
Seneca Falls.....	16.0	28.0	20.0	21.3	
Jamestown.....	2.0	30.0	20.0	17.3	Cloudy; very light breeze E.
Fishkill Landing.....	14.0	24.0	20.0	19.3	Clear; very light breeze E.
Clinton.....	3.0	25.0	11.0	13.0	Clear; very light breeze SW.
Rochester (Matthews).....	8.0	25.0	18.0	17.0	Clear; gentle breeze SE.; a charming day, nearly cloudless, with good wheeling and some sleighing.
Rochester (Dewey).....	7.0	26.0	18.0	17.0	Some snow for a week, except yesterday, and ten days' snow on the ground; only a little; very pleasant day for Christmas; fine wheeling, as ground all frozen; lowest temperature 7°.
Skaneateles.....	10.0	29.0	20.0	19.0	Clear; fresh breeze SE.
Fort Ann.....	0.0	4.0	12.0	5.3	Clear; high wind N.
South Hartford.....	4.0	26.0	28.0	19.3	Clear, calm.
South Trenton.....	20	17.0	24.0	7.0	Clear.
Theresa.....	2.0	19.0	8.0	8.3	Cloudy; very light breeze SE.
* Buffalo.....	14.0	34.0	22.0	23.3	Very light breeze SE.; cold and pleasant through the day; clear, mild and pleasant at 9 p. m.
* Sackett's Harbor.....	3.0	23.0	15.0	13.7	Cloudy; very light breeze E.; fine and pleasant through the day.
* Fort Niagara.....	16.0	31.0	24.0	23.7	Cloudy; very light breeze S.
* Charlotte.....	9.0	34.0	21.0	21.3	Hazy, calm; gentle southerly breeze.
NEW JERSEY.					
Passaic Valley.....	6.5	29.0	24.0	19.8	Clear all day; wind light.
Progress.....	14.0	29.0	23.0	22.0	Cloudy; very light westerly breeze.
Mount Holly.....	15.0	30.0	24.0	23.0	Clear; very light breeze N.
Newark.....				22.6	Clear; gentle breeze NE. The ponds firmly bound, add skating to the other healthful and inspiring sports of the joyous festival of Christmas, which never occurred on a more delightful day. Lowest temperature 15°; highest, 30½°.
PENNSYLVANIA.					
Oil City.....	10.0	33.0	28.0	23.7	Cloudy; very light breeze SE.; lunar halo 44°, 5 a. m., cir. st.; solar halo 44°, 8 a. m., hazy.
Nazareth.....	12.0	41.0	26.0	26.3	Very light breeze NE.; lunar halo 9 p. m.
Tioga.....	6.0	32.0	20.0	19.3	Clear.
Fleming.....	9.0	36.0	20.0	21.7	Clear; very light breeze W.
Philadelphia.....	18.0	32.0	29.0	26.3	Clear; very light westerly breeze.
Cannonsburg.....	13.0	31.0	20.0	21.3	Clear; very light breeze E.
Harrisburg.....	19.0	29.0	28.0	25.3	Cloudy; very light breeze N.; white frost; large lunar halo.
Pittsburg.....	12.0	34.0	30.0	25.3	Clear; very light breeze E.; fine and pleasant.
Silver Spring.....	10.0	30.0	26.0	22.0	Cloudy, calm.

* Stations of the lake survey under the direction of Colonel Graham.

Weather on Christmas day, 1863—Continued.

Station.	Temperature.				Remarks.
	7 a. m.	9 p. m.	9 p. m.	Mean.	
MARYLAND.					
St. Mary's City.....	Deg. 20.0	Deg. 30.0	Deg. 25.0	Deg. 25.0	Clear; very light breeze NW.
Sykesville.....	8.0	27.0	20.0	18.3	Cloudy; gentle breeze NW.
Chestertown.....	18.0	29.0	27.0	24.7	Cloudy, calm.
DISTRICT OF COLUMBIA.					
Washington.....	18.0	-----	26.0	-----	Clear, calm.
SOUTH CAROLINA.					
Beaufort.....	37.0	48.0	44.0	43.0	Clear; fresh breeze NE.
FLORIDA.					
Key West.....	63.0	67.0	-----	-----	Clear; fresh breeze NE.
KENTUCKY.					
Louisville.....	28.0	44.0	36.0	36.0	Clear; very light breeze E.
OHIO.					
College Hill (Hamnutt)...	26.0	34.0	32.0	30.7	Cloudy; fresh breeze SE.
College Hill (Wilson)....	28.0	33.0	28.0	29.7	Cloudy; fresh breeze NE.
New Lisbon.....	20.0	32.0	25.0	25.7	Cloudy, calm.
Rockport.....	31.0	40.0	34.0	35.0	
Welshfield.....	19.0	33.0	28.0	26.7	Cloudy; gentle breeze SE.
Austintown.....	12.0	30.0	27.0	23.0	Cloudy; very light breeze SE.
Westerville.....	27.0	36.0	-----	-----	Cloudy; very light breeze S.
Hillsborough.....	25.0	39.0	35.0	33.0	Cloudy; very light breeze SE.
Portsmouth.....	25.0	37.0	35.0	33.3	Cloudy; very light breeze E.
Bowling Green.....	28.0	41.0	31.0	33.3	Clear; very light breeze E.
Cleveland.....	26.0	36.0	33.0	31.7	Cloudy; gentle breeze S.
East Fairfield.....	18.0	28.0	27.0	24.3	Cloudy; very light breeze N.
Urbana.....	24.0	28.0	24.0	25.3	Cloudy; gentle breeze E.
Kingston.....	24.0	41.0	31.5	32.2	Cloudy; very light breeze NE.
Kelley's Island.....	30.0	36.0	31.0	32.3	Cloudy; very light breeze E.
Cincinnati.....	28.0	39.0	32.0	33.0	Cloudy; gentle breeze E.
Eaton.....	25.0	37.0	29.0	30.3	Cloudy, calm.
* Cleveland.....	23.0	35.0	29.0	29.0	Cloudy; very light breeze SE.
MICHIGAN.					
Ypsilanti.....	22.0	34.0	24.0	26.7	Clear, calm.
Lansing.....	27.0	34.0	26.0	29.0	Clear; very light breeze S.
Clifton.....	20.0	26.0	26.0	24.0	
Monroe.....	28.0	33.0	26.0	29.0	Clear; very light breeze NE.
* Detroit.....	25.0	39.0	39.0	34.3	Clear, calm.
* Tawas City.....	28.5	31.5	30.5	30.2	Cloudy; wind S.
* Ontonagon.....	24.0	29.0	25.0	26.0	Cloudy; wind S.
* Monroe.....	26.5	34.0	23.0	27.8	Clear; very light breeze SE.
* Sugar Island.....	26.0	31.0	30.0	29.0	Cloudy, calm; snowing at 9 p. m.

* Stations of the lake survey under the direction of Colonel Graham.

Weather on Christmas day, 1863—Continued.

Station.	Temperature.				Remarks.
	7 a. m.	2 p. m.	9 p. m.	Mean.	
INDIANA.					
	Deg.	Deg.	Deg.	Deg.	
New Albany.....	28.0	46.0	33.0	32.3	Clear, calm.
Muncie.....	27.0	38.0	30.0	31.7	Cloudy; very light breeze S.
Spiceland.....	27.0	39.0	32.0	32.7	Cloudy; gentle breeze SE.; quite pleasant; some snow on the ground in places.
Newcastle.....	28.0	40.0	33.0	33.7	Clear; very light breeze SE.
South Bend.....	26.0	38.0	36.0	33.3	Cloudy; wind easterly.
Rockville.....	30.0	42.0	38.0	36.7	Cloudy; pleasant, gentle breeze SE.
New Harmony.....	34.0	45.0	42.0	40.3	Cloudy; very light breeze SE.
ILLINOIS.					
Waverly.....	24.0	42.0	37.0	34.3	Cloudy; gentle breeze SE.
Ottawa.....	25.0	-----	33.0	-----	Cloudy; gentle breeze E. at 7 a. m.; strong wind S. at 9 p. m.
Tiskilwa.....	18.0	36.0	36.0	30.0	Cloudy; very light breeze SE.; foggy most all day; snow melting away.
Upper Alton.....	-----	-----	42.0	-----	
Pekin.....	27.0	42.0	40.0	36.3	Cloudy; gentle breeze SE. Very light rain began at 9.50 p. m., and continued with intermissions till 3 p. m. of the 27th, and then a snow till 11 a. m., 28th.
Galesburg.....	35.5	35.5	35.0	35.3	Cloudy; very light breeze SE.
Peoria.....	30.0	43.5	41.0	38.2	Cloudy; very light breeze E.
Winnebago.....	22.0	33.0	30.0	28.3	Cloudy; very light breeze SE.
Augusta.....	29.0	39.0	37.0	35.0	Cloudy; fresh breeze SE.
Sandwich.....	25.0	43.0	34.0	34.0	Clear; very light breeze SE.
WISCONSIN.					
Manitowoc.....	33.0	39.0	39.0	37.0	Cloudy; gentle breeze SW.
Milwaukee.....	30.0	37.3	34.0	33.8	Cloudy.
Beloit.....	34.0	37.0	32.0	34.3	Cloudy; gentle breeze S.
Weyauwega.....	28.0	30.0	26.0	28.0	Cloudy; very light breeze S.
Madison.....	25.0	33.0	30.0	29.3	Cloudy; gentle breeze SE.
* Superior.....	25.0	30.0	29.0	28.0	Cloudy, calm.
MISSOURI.					
Harrisonville.....	34.0	38.0	40.0	37.3	Cloudy; gentle breeze E.; rain from 6 p. m. to 9 p. m.
Canton.....	28.0	39.0	38.0	35.0	Cloudy; gentle breeze SE. Rain began at 10 p. m., and continued, with snow, till 5½ a. m., 27th.
Laborville.....	37.0	46.0	44.0	42.3	Cloudy; wind SE.; very light at 7 a. m. and 2 p. m.; strong at 9 p. m.
St. Louis.....	33.0	45.0	40.0	39.3	Cloudy; fresh breeze SE.
Athens.....	27.0	32.0	35.0	31.3	Cloudy; gentle breeze S.

* Station of the lake survey under the direction of Colonel Graham.

Weather on Christmas day, 1863—Continued.

Station.	Temperature.				Remarks.
	7 a. m.	2 p. m.	9 p. m.	Mean.	
IOWA.					
Muscatine (Foster).....	Deg. 27.0	Deg. 40.0	Deg. 32.0	Deg. 33.0	Cloudy; very light breeze SE. Rain began at 10 p. m.; warm day and thawing; snow settled very much. A team with a load crossed the river on the ice.
Iowa Falls	29.0	36.0	34.0	33.0	Sun not seen to-day; fresh breeze SE.; at 9 p. m. high wind from same direction; began raining at 9 a. m., and continued, with snow, till the 28th.
Lyons.....	30.0	38.0	36.0	34.7	Cloudy; fresh breeze SE.
Pleasant Plain.....	32.0	42.0	36.0	36.7	Cloudy; rain at 6 p. m.; gentle breeze SE.
Algona.....	28.0	32.0	34.0	31.3	Fresh breeze SE.; rain from 9 a. m. to 10 p. m.
Independence.....	28.0	36.0	34.0	32.7	Very light easterly breeze; snow and rain from 6 a. m. till 9 p. m., 28th, with intermissions.
Muscatine (Walton).....	30.0	37.0	35.0	34.0	Cloudy; gentle breeze SE.
Iowa City.....	32.0	42.0	35.0	36.3	
Fort Madison	31.0	43.0	35.0	36.3	Cloudy; gentle breeze SE.
Dubuque.....	27.0	36.0	34.0	32.3	Cloudy; gentle breeze SE. and S.
Mount Pleasant.....	30.0	30.0	35.0	31.7	Cloudy; rain in evening; light breeze E.
MINNESOTA.					
St. Paul.....	24.0	27.0	27.0	26.0	Cloudy; fresh breeze NE.; snow from 2 p. m. till next day, 9 a. m.
Forest City	26.0	36.0	29.0	30.3	Cloudy; snowing at 12 m.; very light breeze E.; changed to the N. in the evening.
Tamarack.....	25.0	27.0	.....	.....	Snow at 9 p. m.
KANSAS.					
Lawrence	34.0	37.0	38.0	36.3	Light rain all day; very light breeze SE.
Fort Riley.....	38.0	40.0	40.0	39.3	Raining slowly all day; strong wind SE.
Manhattan	46.0	48.0	38.0	44.0	Rain from 5 a. m. to 27th, 4 p. m., turning to snow; gentle breeze SW. at 7 a. m.; the warmest day of the month except the 6th.
NEBRASKA TERRITORY.					
Fontenelle.....	30.0	34.0	32.0	32.0	Gentle breeze E.; snow and rain from 10 a. m., 24th, to 7 p. m., 27th; warmest day since the 10th.
Bellevue.....	33.0	43.0	38.0	38.0	Rain all day; gentle breeze SE.; warmest day since the 10th.
Elkhorn City.....	33.0	39.0	35.0	35.7	Gentle breeze SE.; some rain in the night; interrupted snow and rain from the 24th, 9 a. m., to the 27th, 3 p. m.

Weather on Christmas day, 1863—Continued.

Station. *	Temperature.				Remarks.
	7 a. m.	2 p. m.	9 p. m.	Mean.	
COLORADO TERRITORY.	Deg.	Deg.	Deg.	Deg.	
Montgomery	18.0	24.0	15.0	19.0	Snow from 9 a. m. to 6 p. m., four inches; very light breeze NW
IDAHO TERRITORY.					
Fort Laramie.....	30.0	30.0	30.0	30.0	7 a. m., gentle breeze W.; 2 p. m., fresh breeze SW.; 9 p. m., strong wind N.
CALIFORNIA.					
Sacramento	54.0	60.0	50.0	54.7	Clear; very light breeze S. in the morning, E. in the evening.
MEXICO.					
Mirador.....	59.0	66.6	60.8	62.1	Cloudy; very light breeze SE.; mountain covered with snow; Cofre, of Perote, one-third from the point downward.
NEW GRANADA.					
Aspinwall.....	73.2	80.0	78.4	77.2	Rain; fresh breeze NW; rain every day in the month except four.

AURORA.

December 1.—Sandwich, Massachusetts. A simple blush of light in the north, most of the time behind stratus clouds, an hour or more after sunset.

December 1.—South Hartford, New York. A perceptible glow on the extreme northern horizon. No arch was formed before 11 p. m., and probably none during the night.

December 2.—Saint John, New Brunswick. The aurora was seen only on this night, and was of a pale diffused sheet form.

December 2.—Lisbon, Maine. Aurora in the northern quarter at 8 p. m. quite brilliant.

December 2.—South Hartford, New York. A bright glow on the northern horizon, but no arch noticed during the night.

December 2.—Clinton, New York. Aurora rather faintly visible at 9 p. m. Slight beams, low arch, commencing υ Ursa Major, just covering γ , and terminating at τ in Hercules.

December 5.—Urbana, Ohio. A faint aurora, light uniform white.

December 7.—North Littleton, New Hampshire. A faint light in the north.

December 7.—South Trenton, New York. Very beautiful aurora at 7 p. m. Arch formed at $7\frac{1}{2}$; no cloud below.

December 8.—North Littleton, New Hampshire. A faint light in the north, with clouds in the north and west.

December 10.—North Littleton, New Hampshire. A faint light in the north at 9 p. m.

December 16.—Auburn, New York. A remarkably fine auroral arch, at 9 p. m., passing from the northwest to the southeast, about fifteen degrees south of the

* This place is situated at the head waters of the south fork of the Platte river, seventy miles west of Pike's Peak in about latitude 39° and longitude 106° ; height about thirteen thousand feet. The mountains rise on every side, giving a limited view of the horizon. The course of the wind generally follows the ravines and hollows of the mountains.

zenith, four to six degrees in breadth, and faintly visible down to the southeastern horizon. It was very white, and at the period of its greatest brightness crossed the track of the moon, which shone distinctly, though somewhat dimmed, through the aurora. The lower edge of the arch was bordered by a rim about half the width of the arch itself, of well-defined and dense blackness, so that as the moon dipped it was cut off as sharply behind the rim as if it had sunk behind a solid obstruction. It reappeared through thin clouds on the lower edge of the rim, and the aurora soon after began to fade.—*S. M. Hopkins.*

LIGHTNING.

December 7.—Harrisonville, Missouri. Some distant thunder in the south-west about 6 a. m. Rain commenced about 5 a. m., and continued till 1 p. m.

December 13.—Upper Alton, Illinois. Barometer quite low; rain beginning early in the morning; thunder; showery through the day; towards night wind changed to west; sleet, snow, and rain.

December 13.—Laborville, (post office Fox creek,) Missouri. Heavy thunder in the south at 5 a. m., and passed over to the north. At 8 a. m. still thundering in the north, lightning zigzag.

December 14.—Belfast, Maine. Forenoon foggy; highest temperature during the day forty-five degrees; snow all gone; ground bare. Afternoon foggy, misty, wind east; thunder shower at 4 p. m., with heavy fall of rain, ending in night.

December 14.—Williamsburg, Maine. Commenced to rain at 6 p. m. Thunder and lightning from 6 to half past 6. Rain continued till about 4 o'clock next morning, falling to the amount of three-quarters of an inch. It thawed the ground only one or two inches on the top.

December 14.—Lisbon, Maine. Mist and fog till 3.30 p. m.; then heavy thunder shower from southeast, lasting three-quarters of an hour; then heavy rain till 8 p. m.

December 14.—Cornishville, Maine. Heavy thunder in the south at 3½ p. m.

December 14.—Exeter, New Hampshire. Dark at 2½ p. m. Thunder and lightning.

December 14.—Hampton, New Hampshire. The telegraph office was struck by lightning during the shower this afternoon, and the outside wires burned off, and the apparatus disabled. No person was in the room at the time.—*Newspaper.*

December 14.—Boston, Massachusetts. The weather on the 14th was very mild, and until 6 p. m. cloudy. At sunrise it was very foggy; at 11 a. m. showers of rain began to fall, and continued six hours. Some of them were heavy, and the one at 2½ p. m., which was accompanied by two flashes of distant lightning and thunder, as heavy as any here this year. Between 6 and 11 p. m. the weather was partially, at times nearly, clear; at 11 p. m. it was again cloudy; and at 11½ p. m. there was another shower. This morning, (15th.) since 6 o'clock, the weather has been very clear, cooler, and windy, but very fine.—*Meteorological Correspondent, Boston Traveller.*

December 14.—Topsfield, Massachusetts. Considerable lightning, accompanied with thunder at the east and northeast.

December 14.—Fishkill Landing, New York. Thunder shower at 4 p. m.

December 14.—Mount Holly, New Jersey. About 3 p. m. a heavy cloud came up from the northwest, from which fell a copious shower of rain and some hail, the stones being about the size of peas and smaller, attended by high wind, and a single clap of thunder.

December 14.—Sykesville, Maryland. Between noon and 1 p. m. lightning, thunder, rain, and hail; continued fifteen minutes; fifteen minutes after one a splendid rainbow.

December 16.—Chattanooga, Tennessee. One of the severest thunder-storms

that has ever been experienced here occurred this night. The rain was accompanied by lightning and wind, which gradually increased to a hurricane. So far no damage has been reported.—*Newspaper.*

December 16.—College Hill, Ohio. Thunder-storm this evening at 8 o'clock, motion from southeast, attended with lightning; snow two inches deep on the ground at the time, which is not common. Shock about 9 o'clock, which we thought to be an earthquake; but as there was heavy thunder on the same evening we might be mistaken.—*John W. Hammitt, Observer.*

December 16.—College Hill, Ohio. Frequent thunder and lightning this evening between 7 and 10 at the southwest and west, after a snow-storm all day, by light sprinkles and mingled with hail and rain. Distance of the thunder about thirty miles southwest. Earthquake at 9.15 p. m.; tremulous, say ten impulses. Effect produced was the sensation of the impulses in a very firmly built brick house of two stories, forty feet square. The above was observed by two persons in different parts of the house.—*Professor J. H. Wilson, Farmer's College.*

December 16.—Hillsborough, Ohio. Thunder and rain at night.

December 17.—Portsmouth Ohio. At 2 a. m. thunder and lightning, and violent winds.

December 31.—Beaufort, South Carolina. Very heavy thunder shower at 2 a. m., accompanied by high wind.

TEMPERATURE OF SPRINGS.

December 25.—Williamsburg, Maine. Temperature of spring 45° , air 24° . This spring bubbles up out of a slatestone ledge in a mowing field at the foot of a gentle sloping ridge inclining to the east. The water is one foot deep. Temperature of well at the bottom in seven feet of water 40° , air 24° . This well is thirteen feet deep from top of the ground on a high ridge in an open field. Temperature of pond 35° , air 24° . This pond is fed by springs, and is surrounded by a growth of timber. It contains three or four acres; the water is from two to four feet deep, and was frozen over at the time of the observation, the ice being cut through to obtain the temperature of the water. The observations were made about 2 p. m. At 7 a. m. the same day the temperature of the air was 5° ; on the 23d, 1° below zero; and, on the 21st, 2° below. On the 23d of October the temperature of the same spring was 52° ; of the well, 52° ; and of the pond, 48° . The temperature of the air at that time was 48° .

FREEZING OF LAKES, RIVERS, GROUND, ETC.

December 1-31.—Oil City, Pennsylvania. 1st. Eddy in Allegheny river frozen half way across, ice running heavy. 7th. Ice running all day. 8th. Ice gorged and carried away about fifty boats. 12th. No floating ice; frost out of the ground. 15th. Five feet of water in the river; steamers arrived. 27th. Twenty-two inches of water in the river. 28th. Hard rain 8 to 10 a. m.; ice gorge in river three miles above here gave way. 29th. Ice gorge from Pitt Hole came down from 9 to 10 p. m.; fifty or more boats swept away; and upwards of two thousand barrels of oil lost. The gorge was reported to have been seven miles long and nine feet deep. 31st. River clear of ice.

December 1.—Fort Ann, New York. Ground frozen to depth of an inch and a quarter.

December 2.—Rochester, New York. Genesee valley canal frozen over.

December 3.—Steuben, Maine. Anchor ice this morning.

December 3.—Portland, Maine. The skating on a portion of the basin yesterday was excellent, and a large number of ladies and gentlemen were out enjoying it. If it does not storm, the ice to-day must necessarily be in fine con-

dition over the entire basin, and it will probably be covered with the admirers of this charming exercise.—*Portland Argus*, December 4.

December 3.—Lyons, Iowa. Crossing the river on foot. 9th. Ice out of the river. 16th. River frozen over.

December 4.—Theresa, New York. River closed.

December 4.—South Hartford, New York. Lake Champlain permanently closed from Burlington to Whitehall; navigation entirely suspended by the 7th. Champlain canal closed partially on the 4th. Boats continued to run, breaking through the ice, until the 6th, when, being unable to move further, the water was withdrawn, leaving a collection of one hundred boats near Fort Edward.

December 4-15.—Milwaukee, Wisconsin. 4th. Milwaukee river clear of ice. 7th. Slightly covered again with ice. 15th. Again closed.

December 5.—Dubuque, Iowa. The Mississippi river closed with ice on the night of the 5th. Clear on the 7th. Closed again on the 15th.

December 6.—Passaic valley, New Jersey. Ice on the Morris canal for the first time this season.

December 7.—Williamsburg, Maine. Sebec lake is frozen up, except a few small places five miles south of my place. This lake is twelve miles long, and in its widest part about one mile. It is considered warm water for this part of the country.

December 8.—Sandwich, Massachusetts. Sandwich pond frozen over for the first time this winter. 14th. No ice on the pond. 21st. The pond again frozen over.

December 10.—Rochester, New York. Erie canal closed by ice, and navigation suspended. 14th. Canal free of ice. 16th. Closed again.

December 11.—Williamsburg, Maine. Ground frozen thirteen inches deep, with about one inch of snow.

December 11.—Lisbon, Maine. The mail-carrier crosses the Androscoggin on the ice with horse and wagon; ice four inches thick. Re-crossed the next day.

December 11.—Roxbury, Massachusetts. There was a large company on the Washington skating park this afternoon. The ice was clear and strong, and skating was never better. Many were there from Boston, Cambridge, and other adjoining towns.—*Newspaper*.

December 12-30.—Kelley's island, Ohio. 12th, temperature of Lake Erie 38.° 19th, first appearance of anchor ice near the shore. 24th, lake skimmed over with ice. 25th, lights in light-houses discontinued; navigation virtually closed for the season. 29th, ice again broken up so that the schooner Zonan succeeded in getting out of Sandusky bay and reaching the northeast point of the island. 30th, schooner Zonan left again for Sandusky; very little ice near the shore.

December 12.—Buffalo, New York. Erie canal closed.

December 17.—Ottawa, Illinois. Rivers frozen over.

December 18.—Muscatine, Iowa. River froze over last night. (Ice commenced running November 28.) 24th, first team crossed the river on the ice.

December 18.—Madison, Wisconsin. Lake Mendota (largest) closed to-day. Lake Monona closed on the 11th.

December 18.—Arkansas. A remarkable fact indicating the unusual severity of the season west is that on the 18th of December our cavalry crossed the Arkansas river on the ice in about latitude 34.°—*Newspaper*.

December 19.—Muscatine, Iowa. The Mississippi river closed last night with ice. 25th, a team with a load crossed the river to-day.

December 20.—Fishkill Landing, New York. Much ice in the Hudson river; navigation closed.

December 23.—Progress, New Jersey. Rancocas river frozen over. Delaware so filled with floating ice that navigation ceased.

December 23.—Urbana, Ohio. Ice four inches thick.

December 24.—Roxbury, Massachusetts. There is now splendid skating at the Washington skating park in Roxbury. The pond is filled with pure brook water, and is several acres in extent. Portions of Jamaica pond are also frozen so as to afford good skating.—*Newspaper.*

December 25.—Philadelphia, Pennsylvania. The Schuylkill river below the dam was closed by ice; entirely open again on the 27th.

December 29.—Pictou, Nova Scotia. The harbor is now closed with ice.—*Newspaper.*

December 31.—Lunenburg, Vermont. Ground frozen one to two feet deep. Ice on ponds about two feet thick.

December 31.—New Bedford, Massachusetts. River and harbor free of ice through the month. A slight scum remained partially a day or two above the bridge about the 23d.

December 31.—South Trenton, New York. Ground frozen a foot and a half deep. Ground hard frozen all this month; cellars badly frosted, and many vegetables lost.

METEORS AND SHOOTING STARS.

December 2.—South Hartford, New York. At 21 minutes past 9 observed two shooting stars, starting from constellation Leo, falling NW., and disappearing, say, at five degrees above the horizon.

December 2.—Kingston, Ohio. This evening about 8 $\frac{3}{4}$ o'clock a fine meteor appeared in the northwest.

December 4.—Oil City, Pennsylvania. Shooting star at 7 p. m. in the southwest.

December 5.—Columbia, Connecticut. Mr. Yeomans describes a meteor seen by him about 6 $\frac{1}{2}$ or 7 o'clock p. m. while riding towards home. It first appeared about five degrees south of east, and about fifteen degrees above the horizon, moving towards the east. It was so brilliant as to cast shadows, and its diameter was at least one-eighth that of the full moon. Its path was a curve, and the distance traversed was about twenty degrees, leaving a bright trail about five degrees in length. The time of passage was less than a minute, and finally it burst like a rocket about five degrees above the horizon, scattering fragments in every direction.

December 5.—Rockville, Indiana. Two meteors or shooting stars seen at 9 p. m. moving south.

December 5.—Fort Riley, Kansas. Meteor or shooting star in the southwest at 7 $\frac{1}{2}$ p. m., falling in a westerly direction.

December 6.—Oil City, Pennsylvania. Shooting star in the southeast at 8 p. m.

December 8.—Oil City, Pennsylvania. Shooting star in the northeast at 8 p. m.

December 9.—South Trenton, New York. Shooting star in the west; long tail similar to a rocket.

December 23.—South Trenton, New York. At 11.20 p. m. a meteor fell from the vicinity of the Pleiades, seemingly directed towards the earth for some distance, then made an angle south enlarging, then appeared to explode into atoms.

December 29.—Cardington, Ohio. At 7.20 p. m. a shooting star from northeast to southwest passed through Ursa Minor, near the pole star, very bright. 9 p. m., a shooting star in east, very dim; 9.25 p. m., shooting star, very large, bright and beautiful, leaving a long train of light; was of about two seconds duration; passed from Orion south to the horizon.

December 29.—Fort Riley, Kansas. Meteor or shooting star in the south at 8 p. m.

December 30.—New York city. Meteor or shooting star at 8 p. m. from tail of Great Bear.

December 31.—Fort Riley, Kansas. Meteor or shooting star in the southeast at 9½ p. m., falling in a westerly direction.

Meteor seen in New Brunswick and Nova Scotia on the twenty-first of December, 1863.

Mr. G. Murdock, superintendent of the water works at Saint John, New Brunswick, furnishes the following account of a remarkable phenomenon witnessed by a number of persons in the provinces of Nova Scotia and New Brunswick on the night of the 21st of December.

On the 21st a very large and luminous meteor was seen about 11 p. m. and viewed from this city; its course appeared to be from about SW. to NE. The writer of these notes had not the good fortune to see this rare phenomenon, nor to meet any one who had such a view of it as to be able to describe with unreliable accuracy the manner of its approach and appearance when first and last seen. Many, however, saw and were startled by its flashing dazzling light, which is said to have been of a bluish color and to have resembled immense sheets of lightning. Its power was felt in closely-curtained rooms as well as in the open air, and after it had passed there was a deep sense of darkness which neither the clear rays of a full moon outside nor light gas inside could at once dispel. No noise was heard, nor from this city were any balls of fire or stars observed to shoot off from the main body of the meteor. The night was cold and clear. Thermometer about 6° above zero, and wind light NW. The barometer had been pretty steady all day, and at 10 p. m. read 29.874 inches corrected for temperature. The following day was cold and clouded, but there was little variation in the pressure of the atmosphere.

The following particulars of the progress and appearance of this meteor, as observed at different points, may be worthy of record.

At Halifax, Nova Scotia, (about 125 miles in an air line E. SE. of St. John,) it was reported to be seen at the same hour, 11 p. m., but its course was described to be from SW. to E. Its flashings were quick and brilliant, but no sounds or sparks were noticed.

An observer at Parsboro', Nova Scotia, (about 80 miles E. by N. of St. John,) says in one of the Halifax papers that it was "similar to an immense ball of fire, and for three several times it threw out brilliant sparks of fire in every direction, causing at the same time three distinct intense illuminations. The sky during these flashes was entirely overpowered with a bluish flame, through which the moon could scarcely be discerned. When the illumination ceased, so great had been the light that the sky appeared to have been almost pitch dark. In about one minute and a half there was a report sounding much like a heavy cannon. It awoke people from their sleep, and shook houses like an earthquake. A strong smell of brimstone pervaded the atmosphere, producing a suffocating feeling."

Again, at Amherst, Nova Scotia, about 90 miles in an air line E. by N. of St. John, it is reported by another writer to have "crossed the zenith about S. to N., about two seconds elapsing before its disappearance. The nucleus appeared to the eye of a spectator to be the size of a barrel, and to have a tail like a comet or rocket, the rapidity of whose flight it about equalled. The sky was cloudless, except at the south, where a small cloud appeared extending a few degrees above the horizon. Although the moon was at the full, and snow covered the ground, such was the intense brilliancy of the meteor that for miles round the interior of every house was lit up as if by a noonday sun, and the flash was more startlingly bright than the most vivid lightning on a dark night.

It was more than a flash, for the brightness continued for two or three seconds, the color being described as red, white and blue intermixed.

"After an interval, variously estimated from one to three minutes, came a crash of sounds from the north similar to the passing of electricity from one cloud to another over a partially clear sky, as sometimes heard overhead on a summer day. Here the sound, or rather succession of sounds, continued about three minutes, and appeared to some as a distant cannonade, and to others as a *feu de joie* of musketry; to others, again, the rumbling of heavily laden carriages over a hard road or bridge, suggesting the idea of an earthquake. There was, however, no tremulous motion of the ground. Thermometer 3° above, and barometer steady at $29\frac{1}{2}$ inches for several hours before and after."

The next notice we have of it is at Moncton, in this province, about 30 miles in a straight line north by west of Amherst, and about 85 miles E.N.E. of St. John. Of its appearance here the *Westmoreland Times* says: "About 11 p. m. we had several very bright flashes of lightning and some heavy peals of thunder, and in addition to this a beautiful meteor of great brilliancy. The first appearance of the phenomenon was in a westerly direction, and it gradually went off toward the NE. The moonlight, which was very good, was altogether eclipsed by the appearance of the above while it lasted. The night was very cold."

Whether this extraordinary meteor was seen and can be traced beyond this to where it struck the earth is at present uncertain.

MISCELLANEOUS.

December 3.—The coast of England was visited with a terrible gale, which inflicted very great disasters on shipping, and caused much loss of life. It was also very destructive on land as well as at sea and on the coast—chimneys, trees, roofs, barns, houses, &c., being blown down by the violence of the wind. The list of casualties extends over thirty columns of the London papers, and embraces almost every locality on the coast of the United Kingdom, and many points on the adjacent continental seaboard.—*Newspaper*.

December 6.—Charleston, South Carolina. At 2 p. m., while a furious wind prevailed from the northwest, the iron-clad Weehawken, while lying at the entrance of Charleston harbor, went down at her anchorage.—*Newspaper*.

December 6.—Utah. During Saturday night and Sunday morning (5th and 6th) there was another fall of snow in the valley. It came lightly, and lies well; very pleasant for sleighing.—*Deseret News, Great Salt Lake City, Utah, December 9.*

December 11.—Westfield, Massachusetts. First snow this season.

December 11.—Boston, Massachusetts. Wet snow began to fall about 11 p. m., and now (12th, 10 a. m.) has not wholly ceased; about an inch has fallen; the first this autumn. The average time at Boston of the first whitening of the ground by snow is the first of December. The first fall in 1859 was on December 4; in 1860, December 4; in 1861, November 25; and in 1862, November 7.—*Meteorological correspondent of the Boston Traveller*.

December 11.—Fleming, Pennsylvania. The first snow of the season fell to-day.

December 11.—St. Augustine, Florida. The orange trees are now loaded with their golden fruit as heavily as ever were northern apple trees in a year of plenty. There are whole orchards of them.—*Newspaper*.

December 12.—St. John's, Newfoundland. A severe northeast gale, with a heavy snow-storm, has prevailed since the 9th, and still continues.—*Newspaper*.

December 12.—Springfield, Massachusetts. First snow of the season fell this day; unusually late.

December 16.—Boston, Massachusetts. This day is the anniversary of the

most nearly insupportable day experienced here within thirty-nine years, viz: December 16, 1835. Throughout that day the thermometer was below zero, and lowest (11 below) at 6 p. m., and the wind a gale from northwest. The lowest in 1862 was one degree above zero in December.

December 18.—Belfast, Maine. First sleighing of the season.

December 18.—Rutland, Vermont. First sleighing.

December 18.—Leavenworth, Kansas. Accounts from the plains represent great suffering among the men and stock. In consequence of a severe snow-storm no hay or grass could be had, and the stock was dying off by hundreds of starvation, and many lives were known to be lost by the intense cold. Fourteen inches of snow has fallen here, and much of it being drifted all the roads are blocked up. No mails have been received here for three days.—*Newspaper.*

December 18.—Florida. Peach trees in bloom.—*Newspaper.*

December 20.—Louisville, Kentucky. At 8 this morning the mercury stood at five degrees above zero. The weather is more moderate this evening, the mercury being 22 degrees. The river is rising rapidly, and there is plenty of water for the largest boats.—*Newspaper.*

December 22.—Fort Laramie. Colonel W. O. Collins, in a letter dated December 22, says: "The winter is very severe, and it requires great care to save men and stock at the mountain posts."

December 24.—St. Louis, Missouri. The Mississippi at this point is seven inches lower than ever known before, so that the record will hereafter be kept for the low-water mark of this month. Only three feet and a half of water are reported on the bars between this city and Cairo, and the board of underwriters have issued a notice to steamboat men that, till further notice, boats and cargoes will be at the risk of owners north of Cairo.—*Newspaper.*

December 27.—New Orleans, Louisiana. For three days it has rained terrifically. On Sunday morning (December 27) the city was submerged to a depth varying from one to two feet. This lasted, near the river, for several hours. Back towards the swamp the streets were still under water.—*Newspaper.*

December 28.—Winnebago, Illinois. Barometer, at 2 p. m., lower than at any previous time on record at this place.

December 31.—Lunenburg, Vermont. This month has been unusually pleasant and warm. Sleighing is now good, but with not more than two or two and a half inches of snow; but the roads are good and hard frozen.

December 31.—Sandwich, Massachusetts. This autumn and winter, so far, have been remarkable for the great number of heavy southeast storms, with thermometer very high.

December 31.—Nazareth, Pennsylvania. First snow of the season in sufficient quantity to cover the ground, beginning at 12 m. and ending at 7 p. m., when it turned to rain, and the next morning the snow was entirely gone.

Augusta, Illinois.—Good sledding from the 17th to 25th, and from the 28th to 31st.

December 31.—Lyons, Iowa. It has been a cloudy, stormy month, with about ten days of good sleighing.

December 31.—Natchez, Mississippi. The morning was sultry and close; thermometer 80°; wind south; cloudy. About 9 a. m. a remarkable change occurred, and the wind increased and became chilly, and then stinging cold, with occasional warmer gusts. What was remarkable this cold wind blew strongly directly up the river, or from a point south 30° west. At 12 m. the ground began to freeze, and the wind had veered round to west. At 7 p. m. the thermometer stood at 23°, and next morning at 10°, and in some localities in the country as low as 8° above zero. The cold lasted till about the 10th of January.—*William Harper.*

Tamarack, Minnesota.—The first snow to cover the ground fell on the 26th or 27th of November, about an inch and a half, and is now (December 2) nearly all gone. On the 28th of November the mercury fell five degrees below zero for the first time this autumn. Minnetonka lake closed at the same time.

Auburn, Baker county, Oregon, latitude $44^{\circ} 37\frac{1}{2}'$.—The lowest temperature in December was in the night of the 29th. At 4 p. m. the thermometer stood at 4° , and at midnight 2° ; at 8 a. m. on the 30th, 8° . The 30th was the coldest day. The highest temperature was 48° on the 2d. Amount of snow in November $5\frac{1}{2}$ inches; in December 38 inches.

SUMMARIES FOR DECEMBER AND FOR THE YEAR 1863.

This month being the close of the year, some of the observers, in addition to summaries for December, have furnished abstracts for the whole year, and some have also added comparisons with previous years. These tables are of much value, and for the purpose of enabling all our correspondents to have the immediate use of at least a portion of them, we insert here the principal facts they contain relative to rain and temperature. The preparation of the tables has cost the observers much time and labor, and this publication affords an opportunity of giving them a wide circulation among those who will appreciate their value, and of placing them in a form to be permanently preserved and readily accessible. We would be glad to insert all the tables entire, but they would occupy more space than can be spared, and parts of them have already appeared in our regular monthly issues; we therefore limit the extracts to such selections as come within the present scope of this periodical. The interest manifested in this publication has required the extension of the meteorological as well as agricultural portion beyond what was originally intended, and should it be continued, it may be found expedient still further to enlarge it.

SUMMARIES FOR DECEMBER.

Saint John, New Brunswick.—The highest temperature in December, 1863, was 48° at 9 p. m. on the 14th, and the maximum of each December for the last three years has been just the same, and it has not been higher in thirteen years. The minimum was 2° on the 21st and 22d, and the lowest in December in thirteen years was 18 degrees below zero. The amount of snow and rain was rather below the average since 1850, and there was no sleighing before the 18th.—*G. Murdock.*

Providence, Rhode Island.—The mean temperature of the month is nearly four degrees colder than the average of December for thirty-three years. The warmest was that of 1852; the coldest that of 1831.—*Professor A. Caswell.*

Philadelphia.—The highest temperature of December in thirteen years was 71° on the 2d of December, 1859. The same day was the warmest day, mean temperature 23.30° . The lowest temperature was $4\frac{1}{2}^{\circ}$ on the 19th December, 1856, and the coldest day was the 18th, in the same year, mean temperature 11° . The mean temperature of the month for thirteen years is 35.18° , and the average amount of rain and melted snow 3.631 inches.—*Professor J. A. Kirkpatrick.*

St. Paul, Minnesota.—December came in with a very moderate temperature, which continued until the 12th. This was succeeded by a week of cold, during which the mercury fell below the zero point twice, reaching 22 on the morning of the 19th. Then we were favored again with a week of mild weather, the thermometer not falling below 23° nor rising above 31° . This was also a week of continued cloudiness, during which the sun was not visible, and on five days of which snow was deposited. The month was terminated with an access of

severe cold. On the evening of the 31st the mercury had sunk to —28. The following table shows the comparative temperature and rain for five years:

St. Paul, Minnesota.

Year.	DECEMBER.		WHOLE YEAR.	
	Mean temperature.	Rain and melted snow.	Mean temperature.	Rain and melted snow.
	°	Inches.	°	Inches.
1859.....	5.41	0.56	41.77	29.35
1860.....	14.89	0.41	44.37	28.74
1861.....	21.34	0.10	42.64	30.00
1862.....	22.05	1.37	41.01	29.62
1863.....	20.55	1.30	42.42	15.89

The maximum temperature of the year 1863 was 91° on the 6th of July, 18th of August, and 15th of September. The minimum was —31° on the 3d of February.—*Rev. A. B. Paterson, D. D.*

SUMMARIES FOR THE YEAR 1863.

Wesfield, Massachusetts.—The amount of rain that fell in this town in 1863 was 60.97 inches, which is more than has fallen in any year of which I have any record. The following record was kept in this town by an accurate observer, showing the quantity of rain and snow that fell in three years:

In 1786, 34.37 inches of rain and seven feet eleven inches of snow; in 1787, 34.84 inches rain and four feet ten inches snow; in 1788, 39.29 inches rain and three feet seven inches snow.—*Rev. Emerson Davis.*

Providence, Rhode Island.—The mean temperature of the year was 47.70°, which is 0.49° below the average of thirty-two years. The maximum temperature was 92° on the 24th of May; the minimum 6° below zero on the 4th of February. The warmest day was May 22, mean temperature 78.8°; the coldest day, February 4, mean temperature 3½ degrees below zero. The warmest month was July, the coldest December. The quantity of rain was extraordinary, being 54.22 inches, which is no less than 13.05 inches above the average of thirty-two years, and nearly an inch more than in any year during that period. The large excess occurred in April, July, November, and December. The rain fall of July, 9.42 inches, exceeds that of any other month in thirty-two years.—*Prof. A. Caswell.*

Buffalo, New York.—*Temperature.*—The highest temperature during the year was 93° in July, the lowest —7° in February; the mean of the year, 47°. The lake was free from ice during the entire month of January. It was closed by ice on the 4th of February, and open again for navigation on the 26th. The best and nearly all the ice housed by dealers for summer use was cut after the 15th of March. The creek cleared of ice on the 27th of March. Three propellers left port on the 3d of April, and the ice disappeared on the 4th. Erie canal opened on the 1st of May; ice formed over stagnant pools on the 26th and 29th of October. The first snow of autumn, sufficient to whiten the earth, fell on the 26th of November. The Erie canal closed on the 12th of December.

Vegetation.—The opening of buds and flowers was in April, and one week earlier than in the previous year. Currants and lilacs were in leaf on the 4th of May; peach and cherry trees were in blossom on the 12th; strawberries on the 14th; plum trees on the 15th, and apple trees on the 25th. The sugar

maple and horse chestnut were in leaf on the 15th, and forest trees generally on the 18th. The first strawberries grown in the county appeared in market on the 15th of June, thirty days from the blossom. Cherries began to ripen on the 24th.

Arrival of birds.—Robins came on the 24th of March, blue birds on the 4th of April, and swallows on the 19th.—*William Ives.*

New York city.—Maximum temperature during the year, 95°, August 3; minimum, 6°, February 4; mean, 54.24°. Amount of rain and melted snow, 57.03 inches. Snow fell on 32 days, rain on 125 days.—*Prof. O. W. Morris.*

Philadelphia.—The following table gives the extreme and mean temperatures and amount of rain in 1863, and the same for a period of twelve years, selected from tables prepared by Professor J. A. Kirkpatrick for the journal of the Franklin Institute:

	1863.	12 years.
	°	°
Highest temperature.....	95.0, August 10	100.5, July 21, 1854.
Warmest day, mean	88.5, August 10	91.3, July 21, 1854.
Lowest temperature	5.0, February 5	—5.5, January 23, 1857.
Coldest day, mean	11.17 February 4	—1.0, January 9, 1856.
Annual mean	54.13	54.25.
Amount of rain and melted snow.....	49.642 inches	45.328 inches.

Springfield, Massachusetts.—Mr. J. Weatherhead furnishes the following statement of the amount of rain and melted snow during each month in the year 1863:

	Inches.		Inches.
January.....	4.70	July.....	9.77
February.....	4.19	August.....	3.35
March.....	6.12	September.....	2.44
April.....	2.25	October.....	4.23
May.....	3.20	November.....	5.32
June.....	1.70	December.....	4.43
			51.70

Tioga, Pennsylvania.—The mean temperature for the year 1863 was 47.67. The highest temperature was 96°, on the 11th of July and 10th of August; the warmest day was August 5; mean temperature, 80.67. The lowest temperature was 8° below zero, on the 4th of February; the same day was the coldest in the year, mean temperature 4° below zero. The greatest change from a high to a low temperature in twenty-four hours was from February 13, 6 a. m., 24°, to February 14, 6 a. m., 6° below zero, being a fall of 30°. The greatest rise in twenty-four hours was 42°, from 6° below zero on the 14th of February, to 36° above on the 15th. There were in all seventy-four stormy days, and seventy-five inches of snow.—*E. T. Bentley.*

Austinburg, Ohio.—Maximum temperature during the year, 92°, August 2 and August 4; minimum, 4° below zero, January 18 and December 24.—*J. G. Dole.*

Winnebago, Illinois.—Mean temperature of the year 1863, at 7 a. m., 42.19; at 2 p. m., 54.29; at 9 p. m., 44.46; mean for the year, 46.99. Amount of rain, 36.78 inches; depth of snow, 47.3 inches. Highest temperature 98°, August 16; warmest day, mean 86°, August 16. Lowest temperature —12°, February 2; coldest day, mean, —2.33°, February 2. Dates of extraordinary frosts, May 17, June 7, July 13, 14, 15, August 29, 30, September 18, 19, 25.—*James W. Tolman.*

Milwaukee, Wisconsin.—Maximum temperature for the year, 91°, in August; minimum, —12° in February; mean, 46.55°. Amount of rain and melted snow, 31.80 inches.

During the year the minimum for the respective months occurred as follows in January, on the 5th; February, the 3d; March, 5th; April, 17th; May, 5th; June, 5th; July, 15th; August, 29th; September, 8th; October, 31st; November, 29th; December, 29th.

Temperature for the year 1863 at Mirador, Mexico, by Charles Sartorius

Month.	TEMPERATURE.		
	Maximum.	Minimum.	Mean.
January	77.5	44.1	60.22
February	83.8	43.5	65.46
March	86.4	52.5	66.13
April	87.4	49.6	69.64
May	84.7	59.0	69.66
June	82.4	63.7	72.34
July	82.0	63.5	69.98
August	83.8	62.6	70.81
September	80.6	62.6	69.07
October	79.5	56.5	67.23
November	77.4	48.9	63.95
December	77.9	50.0	60.60
Year	87.4	43.5	67.09

GENERAL SUMMARIES.

Mean temperature at 8 a. m. in December and January, at Middlebury, Vermont, recorded by H. A. Sheldon.

	December.	January.
1856	13.13	5.87
1857	25.70	3.29
1858	17.90	21.35
1859	16.54	18.51
1860	20.51	19.35
1861	21.58	14.13
1862	23.51	14.19
1863	20.30	21.87
1864		20.06

Newark, New Jersey.—The following tables of temperature and rain at Newark, New Jersey, for a series of twenty years, are from articles prepared by Mr. Whitehead, and published in the Newark Daily Advertiser. His records of temperature are made only from self-registering thermometers, and half the sum of the maximum and minimum of each day is taken for the daily mean, and from these he derives the monthly and annual means. Some of the figures differ from those in the newspaper, several typographical errors having been corrected by Mr. Whitehead.

Highest and lowest temperature in each month for a period of twenty years at Newark, New Jersey, also the means of the months.

Month.	HIGHEST TEMPERATURE.		LOWEST TEMPERATURE.		Monthly means.
	Year.	Degree.	Year.	Degree.	
January	1847	64	1859	-12 $\frac{1}{2}$	29.47
February	1857	68	1855	- 8	30.54
March	1851	77 $\frac{1}{4}$	1856	2 $\frac{1}{2}$	37.77
April	1846	85 $\frac{1}{2}$	1857	17	48.43
May	1853	88 $\frac{3}{4}$	1855	32 $\frac{3}{4}$	58.58
June	1853	97	1843	38 $\frac{1}{4}$	67.86
July	1849	99 $\frac{3}{4}$	1845	46 $\frac{1}{4}$	73.96
August	1854	99	1854	46 $\frac{3}{4}$	70.86
September	1854	98 $\frac{3}{4}$	1848	34 $\frac{1}{2}$	63.72
October	1858	82 $\frac{3}{4}$	1845	22 $\frac{1}{4}$	53.24
November	1847	73 $\frac{3}{4}$	1847	8 $\frac{1}{2}$	43.31
December	1848	68 $\frac{1}{2}$	1851	- 7 $\frac{1}{2}$	32.74

Temperature and rain in December, at Newark, New Jersey.

Year.	TEMPERATURE.			Inches rain.	Year.	TEMPERATURE.			Inches rain.
	Max.	Minn.	Mean.			Max.	Minn.	Mean.	
December, 1843...	45	8 $\frac{1}{2}$	33.07	4.145	December, 1854...	50	2	29.05	2.635
1844...	61	19 $\frac{1}{2}$	33.16	3.875	1855...	53 $\frac{1}{2}$	12	33.60	6.500
1845...	42	6	27.20	3.735	1856...	53 $\frac{1}{2}$	14	29.81	3.485
1846...	61	10	32.19	3.745	1857...	57 $\frac{1}{4}$	11	37.27	5.785
1847...	65 $\frac{1}{2}$	8	36.76	5.910	1858...	55 $\frac{1}{2}$	11	32.86	4.260
1848...	68 $\frac{1}{2}$	10 $\frac{1}{2}$	40.31	4.520	1859...	61 $\frac{1}{2}$	2 $\frac{1}{2}$	29.45	5.260
1849...	52 $\frac{1}{2}$	6	33.26	4.470	1860...	44 $\frac{1}{2}$	6 $\frac{1}{2}$	28.77	3.420
1850...	56 $\frac{1}{2}$	11	33.79	5.110	1861...	62 $\frac{1}{2}$	12 $\frac{1}{2}$	33.93	1.990
1851...	53	-7 $\frac{1}{2}$	27.65	1.930	1862...	66	5	33.56	1.850
1852...	60	16 $\frac{1}{2}$	39.79	7.545	1863...	54 $\frac{1}{2}$	9 $\frac{1}{2}$	31.32	4.575
1853...	52 $\frac{1}{2}$	8 $\frac{1}{2}$	33.68	1.285					

Highest and lowest temperature at Newark, New Jersey, in each year, during a period of twenty years, with the annual means.

Year.	MAXIMUM.		MINIMUM.		Annual means.
	Date.	Temp.	Date.	Temp.	
1844.....	July 14	92 $\frac{1}{2}$	January 12	3 $\frac{1}{2}$	51.21
1845.....	July 14	98 $\frac{1}{2}$	February 10	3 $\frac{1}{2}$	51.37
1846.....	July 10	94	February 27	1 $\frac{1}{2}$	51.66
1847.....	July 19	93 $\frac{1}{2}$	February 24	1 $\frac{1}{2}$	49.83
1848.....	June 16	94 $\frac{1}{2}$	January 11	0	51.25
1849.....	July 13	99 $\frac{1}{2}$	January 11	- 2 $\frac{1}{2}$	50.89
1850.....	July 25	93 $\frac{1}{2}$	March 4	9 $\frac{1}{2}$	52.86
1851.....	June 20	93 $\frac{1}{2}$	December 27	- 7 $\frac{1}{2}$	51.76
1852.....	June 16	95 $\frac{1}{2}$	January 20	- 2 $\frac{1}{2}$	50.57
1853.....	June 21	97	January 28	6 $\frac{1}{2}$	52.75
1854.....	August 23	99	December 20	2	51.35
1855.....	June 29	96 $\frac{1}{2}$	February 7	- 8	50.68
1856.....	July 27	97	January 9	- 7 $\frac{1}{2}$	48.95
1857.....	August 14	89	January 24	-12	49.95
1858.....	July 11	91 $\frac{1}{2}$	February 24	-	50.52
1859.....	July 13	91 $\frac{1}{2}$	January 11	-12 $\frac{1}{2}$	50.11
1860.....	June 29	90	February 2	- 4	50.00
1861.....	July 9	91 $\frac{1}{2}$	February 8	- 7 $\frac{1}{2}$	50.79
1862.....	August 9	90 $\frac{1}{2}$	December 21	- 5	50.68
1863.....	August 3	90 $\frac{1}{2}$	February 5	- 8	50.30

Rockport, Ohio.—The following table of the mean annual temperature for a series of ten years is published by Mr. Edward Colbourn :

	°		°
1854.....	51	1860.....	52
1855.....	53	1861.....	53½
1856.....	50	1862.....	53½
1857.....	52	1863.....	53
1858.....	54		
1859.....	53	Mean	52½

Northport, Michigan.—H. R. Schetterly, M. D., of Northport, Michigan, in a letter to the Commissioner of Agriculture, dated January 6, 1864, gives the following information with regard to the climate on the east shore of the north end of Lake Michigan :

"We seldom have frost in the vicinity of the lake (Michigan) and Grand Traverse bay between May 10 and October 9. Last summer was the only exception in ten summers I have resided here. The ground is never frozen in winter, and in spring the temperature of the lake water makes the growing season late, especially the blossoming of fruit trees. I am persuaded that this will be one of the best fruit regions in Michigan. The fruit trees here bear every year. They are in no danger of frost. I have already stated that last summer was an exception to a rule here with regard to frosts, though the frosts (happening at the same time) were by no means so severe as in other States. I have now to state that this winter is also a similar exception. Heretofore *permanent* ice never formed on the east side of Lake Michigan and Grand Traverse bay till late in February, though shore ice extending a rod or two would some years form near the close of December and in January, and be dissolved again by warm water driven in. On December 31, ultimo, at 12 m., a gale started up from the west, and drove the water on the beach during the following night apparently as high as it had ever been driven, though it had been subsiding since last spring, and has lately been two and a half feet lower than a year ago. In the morning (January 1) a heavy fall of snow accompanied the gale, and both continued full forty-eight hours without any intermission, attended by intense cold, the air being so filled with snow that objects, say ten rods distant, could not be seen. Ice more than a foot thick now extends (January 6, 1864) forty or forty-five rods into the lake, and is fast extending, though the cold is moderating this evening. The cold never becomes so intense, by nine or ten degrees, around the lake and bays in this region as it often does in northern Indiana, and thirty miles north of Harrisburg, Pennsylvania, where I have lived."

NOTE TO OBSERVERS.

Observers are requested to be careful to write their name, date, and place on every register. Owing to the omission of these, much time is sometimes lost in examination and comparison to ascertain where they come from, and several are now on hand which we have not yet been able to identify. In recording temperatures below zero considerable want of uniformity exists, and in some cases causes uncertainty in reading the records. They should always be written simply with a dash before the figures, thus —4, and in no other way. When the temperature is above zero, write the figures without affixing any mark or word. Care should also be taken so to record the rain as to leave no doubt whether it includes the melted snow or not. It will prevent any uncertainty if only rain is registered in the column for rain, and at the end of the month the amount of rain and depth of snow added up separately at the foot of the respective columns, and then one-tenth of the whole depth of snow added to the amount of rain. In case the observer actually melts the snow and measures it in his rain-gauge, he should take a column of snow as deep as it has fallen and exactly equal in diameter to the opening of the rain-gauge which it is measured in, and so record it as to show that the melted snow is included with the rain

FROM THE SMITHSONIAN INSTITUTION.

The following tables show, first, the temperature and the amount of rain falling in the month of January, 1864, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this January compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for January, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

TEMPERATURE AND RAIN OF JANUARY, 1864.

Places.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Lisbon	Androscoggin	Asa P. Moore	24	44	7, 8	— 7	21.7	3.11
West Waterville	Kennebec	B. F. Wilbur	24	45	8	— 5	22.4	3.67
Cornishville	York	G. W. Guptill	24	42	7	— 9	21.7	5.80
North Perry	Washington	Wm. D. Dana	1	45	7	— 12	20.0	2.43
Steuben	do	J. D. Parker	14, 24	38	7	— 9	29.3	5.06
Williamsburg	Piscataquis	Edwin Pitman	1, 25	40	7	— 14	18.1	4.03
NEW HAMPSHIRE.								
North Littleton	Grafton	Rufus Smith	24	36	7	— 26	13.0	3.59
Littleton	do	Robert C. Whiting	24	44	7	— 22	20.3	4.39
Plymouth	do	J. S. Ryan						
Stratford	Coos	Branch Brown	24	39	7	— 23	18.7	3.50
Claremont	Sullivan	Arthur Chase	24	47	7	— 8	22.0	3.75
North Barnstead	Belknap	Charles H. Pitman	24, 25	44	7	— 2	26.3	1.10
VERMONT.								
Rutland	Rutland	S. O. Mead	28	68	7	— 4	28.3	.....
Brandon	do	David Buckland	28	50	7	— 11	24.2	2.04
Lunenburg	Essex	H. A. Cutting	24	40	7	— 20	18.8	4.83
Craftsbury	Orleans	James A. Paddock	24	45	7	— 18	19.2	4.83
Burlington	Chittenden	McK. Petty	24, 28	42	7	— 20	21.4	3.08
Middlebury	Addison	H. A. Sheldon	1	40	7	— 17	22.8	.....
MASSACHUSETTS.								
New Bedford	Bristol	Samuel Rodman	26	51	7, 8	7	30.4	4.16
Amherst	Hampshire	Prof. E. S. Snell	24, 29	44	7	— 2	24.4	2.70
Topshfield	Essex	John G. Caldwell	25, 26	49	7	5	28.7	2.54
Mendon	Worcester	John G. Metcalf	24	48	7	0	25.4	3.40
Baldwinsville	do	Rev. E. Dewhurst	29	45	2	— 5	21.6	2.87
Sandwich	Barnstable	N. Barrows, M.D.	26	51	7	7	29.7	4.89
Williamsville	Berkshire	Prof. A. Hopkins	28	47	2	— 2	21.5	1.24
Springfield	Hampden	J. Weatherhead	27, 28	52	11	— 4	24.7	2.51
Westfield	do	Rev. Emerson Davis	24	49	11	— 7	23.3	2.69
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell	27	50	8	4	27.3	4.66
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	28	48	2	0	26.0	3.34
New Haven	New Haven	D. C. Leavenworth	26, 29	52	11	— 2	27.0	.....

Temperature and rain of January, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
New York.....	New York.....	Prof. O. W. Morris..	29	62	2	12	35.2	4.02
New York Observ'y.	do.....	Charles C. Wakeley..						
Throg's Neck, (L.L.)..	Westchester.....	Francis Morris.....	25	53	2	6	29.3	2.27
Fishkill Landing.....	Dutchess.....	Wm. H. Denning.....	24, 27	50	7	3	26.3	1.97
Skaneateles.....	Onondaga.....	W. M. Beauchamp.....	28	58	2	— 5	25.3	.....
Seneca Falls.....	Seneca.....	Philo Cowing.....	27	62	2	— 2	27.7	.....
Oswego.....	Oswego.....	W. S. Malcolm.....	28	49	2	— 6	26.3	4.45
South Hartford.....	Washington.....	G. M. Ingalsbe.....	28	48	7	—10	24.8	1.56
Fort Ann.....	do.....	P. A. McMore.....	30	78	9	— 3	33.9	5.51
Gouverneur.....	St. Lawrence.....	Cyrus H. Russell.....	28	49	7	—26	21.8	5.39
Jamestown.....	Chautauqua.....	Rev. S. W. Roe, M.D.	28	56	2	—14	24.2	2.72
Fredonia.....	do.....	Danl. J. Pratt, A. M.	28	58	2	— 7	17.9	2.05
Buffalo.....	Erie.....	William Ives.....	28	56	2	— 9	25.5	3.17
Auburn.....	Cayuga.....	John B. Dill.....	28	54	2, 7	2	26.1	.....
White Plains.....	Westchester.....	Oliver R. Willis.....	29	56	2	6	29.2	.....
Theresa.....	Jefferson.....	S. O. Gregory.....	28	45	7	—26	22.3	2.78
NEW JERSEY.								
Progress.....	Burlington.....	Thomas J. Beans.....	29	62	12	4	29.0	2.46
Mount Holly.....	do.....	M. J. Rhees, M.D.....	29	65	12	1	30.1	.....
Newark.....	Essex.....	W. A. Whitehead.....	29	57	10	6	29.8	2.43
Burlington.....	Burlington.....	John C. Deacon.....	28, 29	65	2, 7	4	28.7	1.20
Haddonfield.....	Camden.....	James S. Lippencott.	28	70	7	7	32.0	.....
PENNSYLVANIA.								
Harrisburg.....	Dauphin.....	Dr. John Heiseley.....	28, 29	53	2	8	29.4	3.12
Nazareth.....	Northampton.....	L. E. Ricksecker.....	28	65	2	0	29.8	.....
Coinnellsville.....	Fayette.....	John Tayler.....	27, 28	54	7	—10	27.3	.....
Philadelphia.....	Philadelphia.....	Pf. J. A. Kirkpatrick.	29	63	2	7	33.2	2.56
Oil City.....	Venango.....	James A. Weeks.....	28, 29	60	2	— 7	26.2	.....
Tioga.....	Tioga.....	E. T. Bentley.....	27, 28	62	3	— 8	26.7	.....
Fleming.....	Center.....	Samuel Brugger.....	27	62	2	— 4	27.4	1.49
MARYLAND.								
Chestertown.....	Kent.....	Prof. J. R. Dutton.....	25	67	2	8	34.0	2.21
Sykesville.....	Carroll.....	Miss H. M. Baer.....	28	64	2, 7	2	29.0	3.50
St. Mary's City.....	St. Mary's.....	Rev. Jas. Stephenson	24	88	7	15	38.4	1.00
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Instit'n.	25	64	2	8	33.5	2.58
KENTUCKY.								
Louisville.....	Jefferson.....	Mrs. L. Young.....	27	71	8	—10	29.7	3.19
OHIO.								
Cincinnati.....	Hamilton.....	G. W. Harper.....	28	65	1	—12	28.0	1.85
College Hill.....	do.....	John W. Hammitt.....	27, 28	60	1	—12	26.8	3.75
Do.....	do.....	J. H. Wilson.....	28	66	1	—14	25.8	3.25
Urbana.....	Champaign.....	Prof. M. G. Williams	28	64	6	—16	25.1	3.38
New Lisbon.....	Columbiana.....	Josiah F. Benner.....	28	62	2	—10	26.4	2.97
East Fairfield.....	do.....	S. B. McMillan.....						2.57
Welshfield.....	Geauga.....	B. F. Abell, A. M.....	28	58	2	—13	25.6	6.66
Austenburg.....	Ashtabula.....	Dole & Griffing.....	28	58	2	—12	25.2	8.14
Portsmouth.....	Scioto.....	L. Engelbrecht.....	28	62	2	0	31.0	3.10
Kingston.....	Ross.....	Prof. J. Haywood.....	28	67	2	— 5	27.5	3.47
Kelley's Island.....	Erie.....	Geo. C. Huntington.	28	54	1	—11	25.3	1.75
Westerville.....	Franklin.....	Pf. H. A. Thompson.	28	61	6	—14	25.0	1.40
MICHIGAN.								
Monroe City.....	Monroe.....	Flor. E. Whelpley.....	28	63	1	— 4	26.4	1.93
Lansing.....	Ingham.....	Prof. R. C. Kedzie.....	28	55	1	—22	23.3	1.29

Temperature and rain of January, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
INDIANA.								
Muncie	Delaware	E. J. Rice	28	64	1	—20	25.3	3.65
New Harmony	Posey	Jno. Chappellsmith	29	67	1	—15	29.0	5.00
Newcastle	Henry	Thomas B. Redding	26	64	1	—19	26.0	2.67
Spiceland	do	William Dawson	28	64	1	—19	25.8	3.03
South Bend	St. Joseph	Reuben Burroughs	28	65	1	—20	30.4	2.63
New Albany	Floyd	Dr. E. S. Crosby	28	71	1	—10	29.7	3.22
Rockville	Parke	Miss M. A. Anderson	28	66	1	—22	27.6	3.10
ILLINOIS.								
Peoria	Peoria	Frederick Brendel	28	66	8	—22	23.4	1.42
Pekin	do	J. H. Riblett	28	65	1	—20	22.3	1.60
Upper Alton	Madison	Mrs. J. Tribble	28	72	1	—21	23.0	.....
Winnebago	Winnebago	James W. Tolman	28	47	1	—28	15.1	2.45
Galesburg	Knox	Prof. W. Livingston	28	62	1	—23	17.4	1.23
Augusta	Hancock	S. B. Mead	27, 28	66	1	—26	20.0	1.98
Hoylton	Washington	J. Ellsworth	29	50	1	—20	.....	.....
Tishkiltwa	Bureau	Verry Aldrich	28	60	1	—24	.....	.....
Sandwich	De Kalb	N. E. Ballou	28	65	1, 7	—26	19.6	3.80
Waverley	Morgan	Timothy Dudley	27	69	1	—24	22.2	2.70
Ottawa	La Salle	Mrs. E. H. Merwin	28	62	1	—25	18.0	2.17
MISSOURI.								
St. Louis	St. Louis	Augustus Fendler	27	71	1	—22	26.3	2.00
Laborville	do	William Muir	27	74	1	—18	29.5	1.70
Harrisonville	Cass	John Christian	27	68	1	—22	24.8	.....
Athens	Clark	J. T. Caldwell	28	63	6	—19	21.9	2.41
Canton	Lewis	George P. Ray	28	65	6	—23	19.6	1.22
WISCONSIN.								
Milwaukee	Milwaukee	I. A. Lapham, LL.D.	25	49	1	—30	18.8	2.15
Beloit	Rock	H. D. Porter	23	46	1	—29	15.8	5.10
Manitowoc	Manitowoc	Jacob Lups	24	47	2	—26	20.5	1.77
IOWA.								
Muscatine	Muscatine	Suel Foster	28	52	2	—26	15.4	.....
Do	do	I. P. Walton	28	55	7	—28	17.2	1.75
Fort Madison	Lee	Daniel McCready	28	60	1	—33	19.9	1.21
Lyons	Clinton	P. J. Farnsworth, MD	27, 28	52	1	—24	18.7	1.10
Pleasant Plain	Jefferson	T. McConnell	27	59	1	—26	19.0	0.90
Mount Pleasant	Henry	E. L. Briggs	28	61	1	—24	19.2	0.75
Independence	Buchanan	A. C. Wheaton	25	48	2	—26	14.6	1.47
Dubuque	Dubuque	Asa Horr, M. D.	25	44	1	—29	15.2	2.62
Iowa Falls	Hardin	N. Townsend	25, 27	45	1	—24	19.8	1.22
Algona	Kossuth	Dr. and Miss McCoy	28	44	1, 2	—24	16.2	0.46
Waterloo	Black Hawk	L. H. Doyle	26, 27, 28	44	7	—28	12.0	.....
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	25	49	1	—35	11.3	0.38
Forest City	Meeker	Henry L. Smith	27	60	1	—28	14.6	.....
Tamarack	Hennepin	Mary A. Grave	26	54	1	—35	8.2	.....
NEBRASKA.								
Elkhorn	Washington	Miss A. M. J. Bowen	26, 27	49	7	—22	16.1	.....
Bellvue	Sarpy	Rev. Wm. Hamilton	27	53	1	—17	18.7	0.41
KANSAS.								
Fort Riley	Davis	Elford E. Lee	27	69	1	—12	27.1	0.20
Lawrence	Douglas	W. L. G. Soule	27	69	1	—17	24.4	1.81
Manhattan	Riley	Henry L. Denison	27	60	6	—13	23.9	0.44
SOUTH CAROLINA.								
Beaufort	Beaufort	M. M. Marsh, M. D.	30	74	2	18	46.0	1.25

Table showing the average temperature and fall of rain (in inches and tenths) for the month of January, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1864.	
		Mean ther.	Mean rain.	Mean ther.	Mean rain.	Mean ther.	Mean rain.	Mean ther.	Mean rain.	Mean ther.	Mean rain.	Mean ther.	Mean rain.	Mean ther.	Mean rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	5	24.3	4.83	12.6	2.46	11.9	7.81	22.6	3.81	17.7	4.81	17.8	4.74	22.2	4.02
New Hampshire.....	4	25.8	5.65	15.8	2.95	10.4	3.34	25.1	2.46	16.1	3.82	18.6	3.64	20.1	3.27
Vermont.....	4	25.3	1.95	11.4	1.48	8.2	2.57	22.7	1.88	18.1	2.63	17.1	2.10	22.5	3.69
Massachusetts.....	12	29.1	4.88	18.0	3.24	16.0	5.06	31.2	3.20	26.0	7.04	24.1	4.68	25.5	3.03
Rhode Island.....	1	30.0	6.45	18.6	5.25	16.3	5.50	33.1	3.33	29.3	5.75	25.5	5.26	27.3	4.66
Connecticut.....	4	29.6	5.40	20.3	4.61	15.8	4.32	32.4	3.03	25.8	7.53	24.8	4.98	26.5	3.34
New York.....	19	27.7	3.36	16.9	2.82	13.9	3.04	31.0	2.25	26.4	3.52	23.2	3.00	26.4	3.26
New Jersey.....	5	32.4	3.37	20.6	3.67	19.6	4.43	37.2	3.58	31.7	5.47	28.3	4.10	29.9	2.03
Pennsylvania.....	14	30.0	2.72	18.6	2.54	18.4	2.69	36.3	2.15	30.5	3.52	26.8	2.72	28.6	2.59
Maryland.....	5	33.8	3.28	21.9	3.59	21.9	2.88	38.6	1.67	34.2	4.69	30.1	3.22	34.0	2.24
District of Columbia.....	1	35.1	.....	21.6	4.00	21.8	0.89	40.2	1.62	36.3	4.54	31.0	2.76	33.5	2.58
South Carolina.....	5	47.2	1.31	36.4	6.47	35.4	2.57	53.2	3.98	45.3	3.33	43.5	3.53	46.0	1.25
Tennessee.....	2	39.6	3.64	25.6	1.38	26.9	2.16	45.8	4.56	39.6	3.31	35.5	3.01	.....	.....
Kentucky.....	4	38.7	3.32	20.9	1.80	24.7	1.53	42.1	2.66	34.0	3.05	32.1	2.47	29.7	3.19
Ohio.....	19	31.4	2.73	17.4	1.69	16.8	1.39	37.3	1.72	30.5	2.42	26.7	1.99	26.5	3.52
Michigan.....	7	25.8	3.50	13.3	1.24	11.3	2.70	31.7	4.01	25.5	2.70	21.5	2.83	24.4	1.61
Indiana.....	4	33.6	4.66	21.5	0.80	16.9	1.01	38.5	2.64	31.8	2.29	28.5	2.28	27.7	3.33
Illinois.....	12	28.2	9.24	14.4	0.96	11.7	0.72	34.5	1.82	26.2	1.78	23.0	2.90	20.1	2.17
Missouri.....	2	33.8	4.66	20.1	1.03	19.3	0.41	39.6	2.85	33.4	2.32	29.2	2.25	24.4	1.86
Wisconsin.....	9	21.2	2.60	9.7	8.56	6.9	1.12	29.7	2.07	19.7	1.21	17.4	3.11	18.4	2.67
Iowa.....	7	23.5	2.08	9.3	1.04	5.7	0.77	32.0	2.03	22.9	1.05	18.7	1.39	17.0	1.28
Minnesota.....	3	0.8	.....	0.9	2.35	6.0	0.91	20.9	2.51	11.1	0.98	7.9	1.69	11.4	0.38
Nebraska Territory.....	1	.....	.....	.....	.....	.....	.....	32.9	1.82	22.4	0.94	27.6	1.38	17.4	0.41
Kansas.....	2	.....	.....	.....	.....	.....	.....	37.7	1.79	30.8	1.43	34.2	1.61	25.1	0.82
California.....	2	44.4	2.67	65.2	4.57	50.1	1.49	46.7	2.50	45.6	1.41	50.4	2.53	.....	.....

BI-MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

MARCH AND APRIL,

1864.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1864.



BI-MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Washington, April, 1864.

As Commissioner of the Agricultural Department, I desire, whilst submitting the BI-MONTHLY REPORT for March and April to the judgment of the farmers of the country, to state the purpose and the necessity of these Bi-monthly Reports.

Although the annual volume issued by this Department has been published to the number of 130,000, and 60,000 additional copies have been ordered, yet a half million of them would be insufficient to meet the demand for them. Whilst this demand attests the approbation it has received, yet objections have long existed to the volumes that have preceded it from the Patent Office, on the ground that many topics discussed in them should have been earlier considered, and the facts embodied in them made public at an earlier period. Among the most prominent of like topics was such a collection of agricultural statistics as would serve to show the amount of each crop as soon as it was matured or harvested, that the price for it should be placed on the just law of supply; for if a commodity is scarce from the shortness of the crop, he whose labor has not met with its usual reward in quantity, from the vicissitudes of the season, should receive the compensation which the increased price gives, and not he who stands between the producer and consumer. Again, a question like that of the proposed tax on leaf tobacco, suddenly presented for consideration and action; or, like that of the manufacture of sorghum sugar and molasses, which the Department had considered through its chemist, and those engaged in it should learn the results in time for their operations; or, like that presented in this report, of the direction the raising of stock is taking; or, like that of agricultural education, which a recent donation by Congress has invested with unexpected interest, by demanding immediate action upon it—all such subjects, to be effectively acted upon, need to be discussed immediately, and without that delay consequent upon the publication of an annual volume only.

Again, this Department was scarcely established before many persons, devoted to the advancement of agriculture in its various branches, commenced a correspondence with it. How should this correspondence be replied to? By discouraging it with that brief, formal red-tape style of letter-writing which belongs to ordinary official communications, and which would but inform every correspondent that the writer knew nothing of the subjects sought to be discussed? Leading agricultural writers demanded

the establishment of this Department that the heads of its different divisions, representing different branches of agriculture and horticulture, could maintain a correspondence that would aid in developing principles through the facts communicated, and, in this way, advance the agriculture of the country. But is such correspondence to be confined to the writers of the letters and the Department? Shall the botanist, or the entomologist, or the chemist, or the statistician, write five or ten or twenty letters daily to as many persons, on subjects belonging to their respective divisions, and which as much concern as many hundred thousand, or shall all have a like opportunity to know, by their publication?

Considerations like these imperatively demanded the publication of the Bi-monthly Reports. But, in establishing them for these purposes, the Department has most carefully avoided occupying any ground that belonged to the agricultural press, by disregarding local topics and the details of general ones. General subjects, and such as demanded immediate discussion, like those named, are alone considered in these reports. If such do not belong to the Bi-monthly Report, then they do not to the Annual Report. If the Department cannot thus discuss agricultural subjects, it has no right to distribute a single seed, or plant, or bulb, because, in so doing, it may be supposed to come in conflict with individual interests. If it cannot do these things, then it has no right to collect any agricultural statistics for the general advantage of producers and consumers, lest it may come in contact with those who are gathering such statistics for their own special purposes and interests. And if it cannot do any or all of these things, then the Department has no right to exist at all.

A more just view of the appropriate action of the Department will regard these reports as an aid, rather than a hindrance, to the agricultural press, by calling the attention of all to subjects of general interest, which cannot but create a general desire for that extended discussion of details and local application which it is the province of the agricultural press to give.

Having thus briefly stated the purposes of the Bi-monthly Reports, the Commissioner would call attention to two articles in the present one.

1. *On agricultural statistics.* The Department, during the past year, has been testing the mode adopted to collect and publish the state of the crops and condition of the farm stock. That test has been satisfactory, and shows that the plan may be entirely relied upon for an approximation sufficiently near the facts for the practical purpose of determining prices so far as supply should govern them. There is a great and an increasing interest in the collection of such statistics; and State Agricultural Societies, seeking to obtain them, may learn from it that correspondents and country societies cannot answer correctly as to the number of bushels, or pounds or tons of a product, but can reliably state, in tenths or hundredths, the present crop in comparison with that of the last year. How their returns aid in estimating the bushels, and pounds and tons, will also be seen. Many difficulties which now exist will be removed by a future speedy publication of the census returns of the crops and stock for the *counties*.

2. *On the number of farm stock.* Political events have made and are still making a heavy demand on the stock of the country, used either for labor or for food. The heavy supply of these comes from the west, but the failure of the fall crops in 1863 has caused this stock to be lessened, except sheep, to which the greatest and most commendable care has been given. The returns and letters of the correspondents of this Department to the last circular show that other stock is too much overlooked, and in laying the tables before the farmers their attention has been called to the importance of using every effort to timely guard against a deficiency in them. The benefit to the country, if the tables and counsel given shall be heeded, will a hundred fold repay every expense that the collection and publication of these statistics may occasion during the next twenty years.

3. Besides these leading articles, the farmers will find statistics showing the condition of the home and foreign markets, and in them will see the causes which give direction and value to their industry. That on the hog crop of the past season will serve to encourage better attention to hogs in the corn-growing States of the west than is now bestowed on them.

4. The meteorological part of this report will be found to possess more than its usual interest. The tables showing the state of the thermometer on the first day of January, and of the points where the cold was below the freezing point during the winter, as well as the most interesting phenomena of a winter remarkable for its changes, cannot but be both interesting and useful. That part of the report is prepared at the Smithsonian Institution, with a care and an ability worthy its high reputation.

5. Having tested the practicability of the present plan for collecting statistics, and satisfied of its great utility, the Department directed its attention to perfecting the workings of the plan. In the beginning, the names of correspondents were collected as best could be, without reference to their locality in a county. Hence, oftentimes there were several in the same part of a county, whilst other portions had none. Nor was there any concerted action between them. To have several returns from one locality rendered the labor of the Department greater than was justified by any greater correctness accomplished by so large a number. To collect information from all parts of a county, through systematic and co-operative action, was a first duty in perfecting the details of the plan. This could be done only by reducing the number to one correspondent, and having him select as many assistants as he thought necessary, not exceeding five. So far this change has been attended with every good effect anticipated from it. The assistants have been selected in different sections of a county. Other changes may, however, be proper in certain localities.

1. In some very large counties, or of great length, it may be desirable to have *two* correspondents, each with five or a less number of assistants. Of the necessity for such an additional correspondent we leave to the one now selected to determine. If any one who has a very large county to report, especially if his location is not central, thinks that there should be another

at a point remote from his own, he will select a competent person, and send his name and post office address in his return.

2. As nearly all correspondents will have, by this time, selected their assistants, they are desired to forward their names, together with their post office address.

3. Many of the correspondents having desired that the circulars should be sent for each assistant, this will be done—one for each assistant and two for the correspondent, that he may keep at home a copy of his returns to the Department. He will make up his own return from those of his assistants, and whatever other sources of information he may possess, and send only his own.

4. That the correspondent may keep a more complete record of the weather, and to prepare the way for meteorological observations hereafter, if thought to be desirable, the Department will prepare blank forms for such record, of a character that will impose no labor on its correspondents, but a pleasure rather. The object of it will be to keep, very briefly, a collection of statistics that will show the arrival of birds, the starting of the growth of plants, and the leafing, blossoming, and ripening of their fruits, and all those daily phenomena or signs that mark the progress of the seasons, together with the fall of rain and snow, the occurrence of storms, or other unusual incidents of the weather.

For the numerous expressions of regard to the Commissioner for his management of this Department he returns his most grateful acknowledgments. That the Annual and Bi-monthly Reports will serve to so increase the desire for agricultural information that instead of conflicting with the demand for agricultural papers they will but increase it, and that the seeds distributed will promote such interest in the vegetable and flower garden that they will create a greater purchase of those sold, is to him an indisputable fact, as seen in the result of every improvement in the mechanic and manufacturing arts, and in all other branches of business demanding invention.

ISAAC NEWTON, *Commissioner*.

ANNUAL AGRICULTURAL STATISTICS.

ENGLISH, PRUSSIAN, AND AMERICAN MODES OF ESTIMATING THEIR ANNUAL AGRICULTURAL PRODUCTIONS.

The commerce of the world is so dependent on agricultural productions, that to ascertain their annual amount has become an object of the greatest utility. Nor less dependent on them are manufactures, and all the industry employed therein. The textile material, as cotton, wool, and flax, is essential to the great clothing manufactories, and the animal, cereal, and vegetable food to sustain the health and strength of their operatives. A scarcity of these, or their abundance, affects the exchanges of the world. In view of this absolute dependence on agricultural production, the nations of the earth, especially those like England, which do not supply their own wants by their own agriculture, or like Prussia and the United States, which largely export agricultural products to the manufacturing nations, are forming plans to ascertain the yield of their annual harvests.

The modes adopted have several objects in view. One, as the decennial census of the United States, aims to ascertain the general progress of the nation and its direction. Another, as the fifth-year census of Massachusetts, has the same object in view, but to determine these at shorter intervals. A third mode is seen in the annual censuses of several of the States, as of Ohio, Iowa, Kansas, and California, which, to the objects already named, add the additional one of affecting the course of agricultural and manufacturing industry by pointing out wherein lies its excess or deficiency. A fourth one goes yet further, and endeavors to estimate the amount of the crops before they have passed from the hands of the producer, that he may reap the just rewards of his toil—a price greater or less, as the annual production may be small or great. It seeks not only to show the general progress and direction of agricultural industry, but the *market values* of its productions. To show this last mode, as adopted in Great Britain, Prussia, and the United States, is the purpose of this article.

1. *Great Britain.*—In this nation, where agriculture has attained such high perfection, no mode of ascertaining its product, established by law, exists. The farmers of England oppose it, whilst those of Scotland favor it. Attempts have been made in Parliament to establish one, but as yet unsuccessfully. Their only result has been to elicit the reasons of this hostility of the English farmers, which, so far as we have seen them, are refuted by experience here. But in the absence of a national mode, the MARK LANE EXPRESS has endeavored to supply the want of it by its own enterprise. We therefore refer to its plan as the English mode.

In its issue of February 8, 1864, we find its report of the cereal crops for 1863 of wheat, barley, oats, and potatoes, and in that of February 22 for the crops of beans, peas, turnips, and mangolds. To exhibit the plan adopted by the EXPRESS we take its introductory remarks, and its return of the first-named crops for the county or shire of Devon, and that of the last-named for the county of Bedford.

THE CEREAL CROPS OF 1863.

"According to our annual custom, we present in to-day's impression a tabular view of the results of the harvest of 1863, the substance of more than six hundred letters from all parts of England, and from the most respectable and reliable authorities. In another table will be found a condensed view of these results, bringing them into a few lines, and showing at one glance the most correct estimate of the actual produce of the country that can be obtained, so far as the principal articles of human food are concerned. The remaining crops will be treated of in a future number of the paper."

From this "condensed view" we take the returns for the counties of Devon and of Bedford, that the reader may clearly see their character. The names following the county are the places from which the returns are mad

An estimate of the yield of the crops of England for 1863.

County.	Wheat.	Barley.	Oats.	Potatoes.
DEVONSHIRE.				
Bampton	Three quarters per acre; this is over average, and quality good.	Four quarters per acre, two-thirds stained by the wet.	About an average, of good quality	Good crops, quality never better.
Barnstable	Four quarters per acre, the yield and quality good.	Four to six quarters per acre, weight 53 to 56 pounds, and bright.	An average, 36 to 40 pounds per bushel.	An average, and little diseased.
Bideford	An average, say from two to three quarters per acre.	Average, say four to five quarters per acre.	Four to six quarters per acre	An average, not much diseased.
Clunleigh	Twenty bushels per acre, of good quality.	An average crop	An average	Over average, early sorts half diseased.
Coombe	Two and a half quarters per acre	Three quarters per acre	Four quarters per acre	Fair crop, half diseased.
Crediton	Full one quarter above average, and very good crop.	Over average, and good quality	Five to six quarters per acre	Good crop, one-third diseased.
Hollacombe	Two and a quarter quarters per acre, or an average.	Three quarters per acre, or under average.	Three and a half quarters per acre, or under average.	Best crop for eighteen years.
Holworthy	Average crop, in some places damaged by the weather.	.....	Very light crop, straw spoiled with wet.	Good crop.
Honiton	Considerably over an average	Over an average	Over an average	Best crop for many years.
Lanerton	Over average, (say twenty bushels per acre,) very good quality.	Over average, thirty-five bushels per acre, quality good.	Yield and quality good, straw deficient.	Better than for many years.
Ottery St. Mary	Considerably over the average, or three quarters per acre.	Over average, or five quarters per acre.	About an average	Over average, but half diseased.
Plymouth	Good in quantity, condition damp, quality weak.	Quantity good, quality inferior	Good in quantity and quality	Quantity and quality good.
Plymouth	Above average, damaged by the wet harvest.	Quantity an average, quality bad	Above average, but soft quality from wet.	Good crop, disease as usual.
South Molton	A good crop	Good crop	On the whole pretty good	Generally good, but turn bad in pits.
Tavistock	About three quarters per acre, or over average.	About four quarters per acre, badly harvested.	About six quarters per acre	Large crop, of good quality.
Tiverton	One quarter, above an average per acre.	Five bushels per acre, above average	A good average crop	Good crops, much diseased.
Torrington	Considerably above an average, and well harvested.	Early crops well saved, the remainder damaged.	An average, but variable in quality	Quantity and quality good.
Ugborough	Two and a half to four and a half quarters per acre, or over average.	Above average, but much unfit for malt.	Above average, and of excellent quality.	

County.	Beans.	Peas.	Turnips.	Mangolds.
BEDFORD.				
Bedford	About an average, although hardly so.	Where grown a full average.	Many very bad, few good, much less than an average.	Some early sown good, but many a total failure.
Biddenham	Under an average.	Under an average.	Considerably under average.	Considerably under average.
Biggleswade	Four quarters per acre	Very good crops .	Under an average.	Much under average.
Bletsoe	Not so good as last year	An average.	Not above half a crop	Very bad.
Carlton	Under an average.	An average.	Under average.	Under average.
Eyerton	Not an average.	An average.	Good crops.	Inferior crop.
Harrold	Under average.	An average.	Under an average.	Nearly a failure.
Keysoe	Under average.	An average.	Very much under average.	Not half a crop.
Luton	An average.	An average.	Under average.	Very bad.
Milton Bryan	Four and a half quarters per acre.	Four quarters per acre	Very bad.	Very good.
Sandy	A very good crop.	From seven to eight loads per acre.	Early Swedes diseased, late sown a good average.	Very light crops.
Shefford	About five loads per acre.	From seven to eight loads per acre.	From ten to twelve tons per acre	Sixteen to twenty tons per acre.
Silsoe	Very good, over an average	.....	Very bad in general, especially the Swedes.	Not so good as usual.
Toddington	An average.	An average.	Under average.	Under average.
Widlen	One quarter, over an average.	An average.	Very poor crop	Plant missed, mostly ploughed up.
Woburn	An average, quality good, not very well podded.	Where grown a heavy crop	Very bad crop, but much improved since harvest.	On light soils a crop, heavy land a failure.

The plan as seen in these extracts has great objections. After reading all the returns, who can tell their result? They convey an impression that the crops are good, but how much above or below a standard, or a normal, or an average crop, no one can tell. They are too prolix, although as much condensed as the plan will allow. For the forty counties of England they would require thirty-two pages of the size of those of this report. For the United States they would demand a large volume, which would be read by not more than one person in a half million of our population. Nor does this plan institute a comparison with the crop of any preceding year. These objections do not obtain to the plans adopted in the United States or Prussia.

2. *Prussia*.—This nation has a Department of Agriculture, presided over by a Secretary. In its operations agricultural societies act as an aid to the Department. They meet together and make up an annual report of the crops. We have no knowledge of the means adopted by them to collect the information they embody in their report, but the following quotations from their report for 1862 will show the plan adopted. Their estimates, it will be seen, are comparative, and the standard of comparison is 100, representing an imaginary normal crop. As no census has ever been taken there of the number of bushels produced in any one year, the comparison must always be with this imaginary standard; nor can their returns be reduced to bushels, as they are here, for want of a basis which such census would furnish. The report is given for "Governmental districts," which are nine in number, and the returns from which it is compiled are four hundred and twenty-nine.

The *first* table exhibits the amount of the crops for the province of Prussia, with remarks on the quality, &c.

The *second*, the summary for all the provinces.

The *third*, the average yield for ten years of the provinces.

THE HARVEST IN THE SEVERAL PROVINCES OF PRUSSIA.

1st Province of Prussia; from 81 Reports.

	Governmental districts.	GRAINS.					VEGETABLES.					STRAW.						
		Wheat.	Rye.	Barley.	Oats.	Peas.	Buckwheat.	Potatoes.	Rape.	Sugar beet.	Other kinds of turnip and kale.	Lupine.	Wheat.	Rye.	Barley.	Oats.	Peas.	Buckwheat.
1	Kingsberg.....	0.79	0.92	1.12	1.17	1.14	0.59	0.63	0.87	0.70	0.86	1.01	0.97	0.90	1.14	1.19	1.23	0.60
2	Gumbinen.....	0.67	0.94	1.13	1.18	0.91	0.53	0.96	1.00	0.93	0.90	0.93	0.96	1.14	1.18	1.05	0.58	0.58
3	Marienwerdert.....	1.02	1.01	1.02	1.02	1.23	0.77	0.97	0.75	0.80	0.72	1.02	1.02	1.04	0.97	0.98	1.26	0.81
4	Dantzig.....	0.83	1.01	1.06	1.07	1.21	0.70	0.89	0.79	1.00	0.71	0.94	0.97	1.01	1.04	1.07	1.22	0.68
	Average.....	0.83	0.97	1.08	1.11	1.12	0.69	0.76	0.84	0.88	0.81	0.97	0.97	0.98	1.07	1.10	1.19	0.70

Remarks on the crops of the neighborhood of Kingsberg.

Average weight: Of wheat, 82 pounds; of rye, 79 pounds; of barley, 68 pounds; of oats, 52 pounds; of peas, 85 pounds; of buckwheat, 57 pounds; of potatoes, 96 pounds; of rape, 71 pounds per scheffel, (1½ bushel.) Hay of both cuttings, 0.92; first cut of a bad quality in many places; second cut of very good quality. Other field crops, 0.98; flax, 1.02; wool crop, 0.99.

Wheat suffered much from rust; turnips from maggots. Potatoes showed the well-known disease of the vine, their development being therefore checked in many places, and suffering at the same time from maggots; beans suffered from mildew.

SUMMARY.

Returns of crops in the several Provinces.

Province.	GRAINS.					VEGETABLES.					STRAW.						
	Wheat.	Rye.	Barley.	Oats.	Peas.	Buckwheat.	Potatoes.	Rape.	Sugar beet.	Other kinds of turnip and kale.	Lupine.	Wheat.	Rye.	Barley.	Oats.	Peas.	Buckwheat.
Prussia	0.83	0.97	1.08	1.00	1.12	0.69	0.76	0.84	0.88	0.81	0.97	0.97	0.98	1.07	1.00	1.19	0.70
Posen	0.88	0.89	0.89	1.02	1.00	0.72	0.89	0.69	0.62	0.68	1.06	0.82	0.87	0.85	0.98	1.02	0.70
Pommern	0.82	0.82	1.01	1.14	1.05	0.39	0.78	0.88	0.81	0.86	1.03	0.80	0.82	1.02	1.14	1.10	0.57
Brandenburg	0.90	0.98	0.96	1.00	0.89	0.76	1.02	0.85	0.89	0.82	1.15	0.87	0.93	0.94	1.00	0.98	0.84
Silesia	0.97	0.97	0.94	1.02	0.93	0.79	0.99	0.70	0.78	0.89	1.06	0.98	1.02	0.93	1.05	0.96	0.83
Saxony	0.96	0.93	0.95	1.07	0.99	0.90	0.74	0.67	0.92	0.96	1.15	0.92	0.93	0.96	1.08	1.06	0.98
Westphalia	0.87	0.78	0.99	1.13	0.95	0.83	0.76	0.74	0.76	0.82	0.86	0.87	0.86	0.98	1.12	0.97	0.86
Rhenish Province	0.91	0.73	0.95	1.10	1.03	0.81	0.71	0.69	0.90	0.89	1.07	0.92	0.83	0.94	1.09	1.02	0.84
Hohenzollern .....	.....	0.83	1.04	0.97	0.97	.....	0.80	0.95	1.01	1.00	.....	.....	0.79	0.95	0.91	0.97	.....
Average	0.89	0.88	0.98	1.05	0.99	0.74	0.83	0.78	0.84	0.85	1.04	0.89	0.89	0.96	1.05	1.03	0.79

Average yield of the harvest of all provinces during the last ten years.

Year.	Wheat.	Rye.	Barley.	Oats.	Peas.	Potatoes.	Rape.	Sugar beet.	Lupine.
1853	0.85	0.84	0.88	0.91	0.70	0.57	.....	.....	.....
1854	0.99	0.98	0.99	1.04	0.92	0.56	.....	.....	.....
1855	0.61	0.66	0.95	0.98	0.67	0.61	.....	.....	.....
1856	0.94	1.00	1.00	1.04	1.05	0.82	.....	.....	.....
1857	1.02	1.01	0.73	0.61	0.44	0.95	.....	.....	.....
1858	0.73	0.83	0.65	0.62	0.37	0.90	.....	.....	.....
1859	0.89	0.77	0.70	0.83	0.72	0.81	.....	.....	.....
1860	0.97	0.99	0.92	1.05	0.89	0.58	0.93	0.95	.....
1861	0.95	0.80	0.93	0.99	0.86	0.66	0.74	0.87	0.78
1862	0.89	0.88	0.98	1.09	0.99	0.83	0.78	0.84	1.04
Average of 10 years.	0.88	0.88	0.87	0.92	0.76	0.73	.....	.....	.....

This plan is an admirable one. If aided by a decennial census even, so that the amount of the crop, in scheffels or bushels, could be ascertained and made the standard of comparison, instead of the supposed normal one represented by 100, it would leave nothing more to be desired. It represents the least change in the crop, and is capable of a condensation that fits it for any extent of territory. The machinery through which it acts, so far as we can conjecture, is objectionable, because agricultural societies, although very useful in assisting to give information, are unsuited to direct the operations necessary to collect and arrange the returns. It should be done by the immediate agency of the Secretary of the Department of Agriculture.

3. *United States.*—Before stating the plan pursued in this department, it is proper to allude to the causes which called it into existence.

The vast agriculture of the United States, and the remoteness of the regions of great production from the places of consumption, require several

sales to be made between the producer and consumer. The meats and large quantities of breadstuffs are sold in the months of November and December.

The banks, to meet the great demands upon them for the purchase of so large products in so short a time, reduce their discounts largely in the fall, and thus the opening of the fall markets is in a greatly lessened amount of paper circulation. The scarcity of money, the abundance of the crops, with other well arranged alarms about the prospect of a European demand, led to a depression of prices, which generally was not well gotten over before the crops had passed from the control of the producer.

Against this injustice intelligent farmers would remonstrate, but what availed their scattered and unconcerted efforts against the influences they encountered? But with the successful formation of county and State agricultural associations, the means of more concerted action were at hand.

The following circular, addressed to other State agricultural societies by the president of the Maryland State Agricultural Society, shows the nature and the purpose of the first effort to collect speedily the returns of the annual crops:

CENTREVILLE, QUEEN ANNE COUNTY, MD.,

July 16, 1855.

DEAR SIR: For the promotion of the farming interest of the country, we are anxious to procure the earliest reliable information possible of the crops, that the same may be laid before the farmer to guide him in the selection of the best time to dispose of the fruits of his labors. This duty should properly be imposed upon an agricultural department of the general government, but in the absence of such provision, and in view of the artful practices of speculators and others, operating most disastrously through the base venality of the public press, upon this leading interest, the obligation is devolved upon us.

The question arises, how shall we best discharge it? Shall we rest content as heretofore to do nothing; to sit with our hands before us without an effort to secure that information which by concert of action is entirely within our reach; to see our brother farmers robbed of twenty to thirty per cent. of the labors of their hands, by the superior information and cunning of the astute purchaser, merely from an indisposition on our part to make that exertion necessary to secure the important end we should earnestly labor to accomplish? The answer is but too plain, and pronounces such a course to be altogether unworthy of sensible men. Let this charge, then, of inefficiency, of want of energy to secure our own interest, no longer rest upon us; but if we have not already, let us at once so organize the societies of our respective States as to make them efficient in procuring this information so all-important to the farmers.

Let us have gentlemen of intelligence and reliable judgment in each county of our respective States, connected not only by position as officers, but by interest, too, with our State societies, that we may have a right to call on statedly for information touching the crops of their different localities. They can be directed to forward their reports to some selected officer, whose duty it should be to collate them and disseminate the information thus deduced through the public press, and by circulars transmitted to each of the State agricultural societies of the Union.

We will invite your attention to the organization of our Maryland Agricultural Society as well adapted to promote the object contemplated, and for your information, ask your perusal of a circular, which we herewith enclose; and which we had the honor of addressing to our sister societies at the time of its date.

We hope to be able to lay before you a statement of the wheat, grass, and oat crops of Maryland by the 1st of September, and of the corn crop by the 1st or middle of November.

Earnestly soliciting your co-operation in this important matter,

I have the honor to be your obedient servant,

JAMES T. EARLE,

President of Maryland State Agricultural Society.

To _____,

President of _____ State Agricultural Society.

Mr. Earle, at the same time, issued a circular to individuals and county societies, asking them to report, by the tenth of October following, the state of the crops, whether above or below an average, and the causes that have beneficially or prejudicially affected the crops.

These efforts assumed a more definite form in the plan adopted by the editor of the *American Agriculturist*, Orange Judd. In 1862 he issued a circular to his subscribers and others, containing five sets of inquiries, one for each of the months from May to September, and all alike. The following is a copy of the circular issued by him; the explanations which were a part of it we omit:

In the omitted explanations the number 10 is made to represent an average crop, instead of 100 in the Prussian plan. This is better adapted to the climate and magnitude of the crops of the United States, for its fraction of *one-tenth* approximates sufficiently near to represent the actual production of a county. In preparing tables for each State from the county returns it has been found necessary to retain fractions of tenths when the number of farm stock or of bushels of grain have to be calculated from the compiled returns in tenths for each State.

But the details of the plan of Mr. Judd are defective in this, that they ask the correspondents to give annual averages for five years, when they have no basis on which to make them. This should be the work of the central agency, which should have all the statistics necessary to make the proper deductions. They are defective, too, in asking the same questions for each month. This Department has felt the necessity of asking many questions suggested by the returns of the preceding month. But we presume that to economize the expenses in printing, postage, and labor in compiling the returns was the cause of having the questions for each month alike. To Mr. Judd belongs the credit of giving definite shape to a plan for the annual collection of the statistics of the crops, by which their amount could be approximated to sufficiently near for all practical purposes. His plan is virtually the same as the Prussian, and it is the one adopted by this Department. The details, however, have been much changed by it, and made applicable to almost every matter belonging to agricultural production.

With this brief allusion to the causes which led to this plan of collecting agricultural statistics in the United States, and the gradual progress made towards its present (yet incomplete) condition, it is unnecessary to give any table from our circulars to more fully show the character of the questions asked our correspondents, for the tables published in this and other reports show all the questions asked them.

4. *The means used in the practical operations of the plan.*—It is proper that these should be noticed, for we believe that before long this plan will be adopted in all commercial nations.

Every month during the summer, and bi-monthly during the winter, the Department issued circulars to its correspondents. These are persons recommended by members of Congress and others. The first trial showed that they could not give reliable statements as to the number of bushels or pounds of any product, but very useful information whether the crop inquired about was a tenth or more greater or less than the preceding crop. Such information, whilst it is not to be implicitly relied upon, is, nevertheless, a most important element in calculating the bushels or pounds of a crop.

The number of such correspondents should not exceed *one* for an ordinary sized county of 400 square miles or 20 miles square, and about five assistants. They are not paid any compensation, except in copies of the Annual and Monthly Reports and seeds, and they ought to receive a copy of the abridged census reports and of the unabridged, so far as relates to agriculture, for the purpose of aiding them in the discharge of their duties.

On a day named in the circular their returns are sent to the department by the mail, and as fast as received they are entered on rolls for each State, and when all are entered the returns are added up and the product divided by the number of counties returned for each crop. This gives the general average for each State in *tenths* and *fractions of a tenth*.

The next step is to calculate from these averages the product of a crop in bushels or pounds, because these best exhibit the increase or deficiency. Herein, at this time, lies the chief difficulty of the practical workings of the plan.

For want of the census returns showing the product of the *counties* the correspondents have nothing upon which to base their estimate of present crops. Had this department been in existence in 1861, and had placed before it the returns for the counties, it could have made up *county* estimates from year to year since 1860, based on the estimates for each preceding year and the returns of the correspondents for the succeeding one. The publication of these would have aided the correspondents in their judgment. Since 1860 the effect of the civil war has completely revolutionized agriculture. With these two difficulties, (the first of which should not have occurred, and the last will cease with the restoration of peace,) the labor of estimating the amount of the crops in bushels and pounds is very great. It involves an examination of the general progress of the agriculture of each State for a series of years, which is shown chiefly by the census returns of 1840, 1850, and 1860. The *per cent.* increase must be ascertained of the progress made by each State in each crop, at different periods of this progress, also special causes acting on production, as railways, or other improvements in transportation, or on prices, as unusual commercial demand, or in change of products by the growth of manufactures. The duration, extent, and intensity of their action must be considered. At this time the points of government supplies must not be overlooked. How far each section of the country will be influenced by these causes must be judged of from a personal knowledge of the general agricultural condition of the country and of much of its local peculiarities. National and State censuses must be compared, and from every source of information must be derived the means of correcting the returns of correspondents, who, under the circumstances in which the country and they themselves are placed, cannot be regarded as always correct. In ordinary times none of these disarranging causes are at work, and hence, when once the plan is fairly in operation, the annually published estimates of the production of *counties* will sufficiently guide the judgment of correspondents, especially when greater experience shall have familiarized them with their duties. But with all these extraordinary difficulties to contend against, the returns of correspondents are far more reliable than most of those made by township and county assessors, who collect agricultural statistics for several of the States. The omissions of these assessors are so many, their indifference and carelessness so great, the reluctance of the people so general to render an account of their annual products, lest they may be subjected to taxes, that the collected returns present most unreliable results.

5. *The utility of these statistics.*—From time to time brief references have been made in these reports to the practical operation of the statistics thus collected. The plan has been in trial for a year—one of a most extraordinary character. To the disturbing causes from political convulsions were added the injuries to the fall crops from frosts of unexampled destructiveness. The statements made have been tested by time and commercial transactions, and they have been sustained in a most gratifying manner. Those who made immediate purchases last fall from faith in these reports are now rejoicing over the money saved. They at once established an advance of twenty cents a bushel for corn, and the farmer has received that which was justly due to him. In none of the facts stated has there been any material error. If, then, the plan has stood these tests in a time so extraordinary, it cannot fail when with peace comes our accustomed agricultural prosperity, and with ordinary seasons our usual crops.

TABLE OF FARM STOCK.

Table exhibiting the number of the most important farm stock for 1859, as returned by the Census report of 1860, and the estimated numbers that were in the several loyal States in January, 1864.

States.	HORSES.		MULES.		CATTLE AND OXEN.		COWS.		SHEEP.		HOGS.	
	Year 1859.	Year (Jan.) 1864.	Year 1859.	Year (Jan.) 1864.	Year 1859.	Year (Jan.) 1864.	Year 1859.	Year (Jan.) 1864.	Year 1859.	Year (Jan.) 1864.	Year 1859.	Year (Jan.) 1864.
Maine.....	60, 638	56, 375	104	124	229, 619	211, 227	147, 315	150, 065	452, 472	823, 498	54, 783	46, 610
New Hampshire.....	41, 101	38, 226	10	10	169, 587	151, 901	94, 880	87, 500	310, 534	565, 271	51, 935	42, 884
Vermont.....	67, 250	54, 790	35	35	192, 217	190, 119	171, 698	167, 954	721, 993	1, 112, 969	49, 433	38, 421
Massachusetts.....	47, 786	52, 160	108	119	135, 422	136, 526	144, 492	167, 651	114, 829	194, 190	73, 948	63, 263
Rhode Island.....	7, 121	7, 306	10	12	19, 405	20, 553	19, 700	21, 290	32, 624	32, 624	17, 478	14, 512
Connecticut.....	33, 276	34, 554	82	88	143, 028	146, 190	98, 877	109, 714	117, 107	179, 343	75, 120	67, 122
Delaware.....	16, 562	17, 104	2, 294	2, 500	35, 126	35, 358	22, 595	23, 289	18, 857	20, 000	47, 848	40, 248
New York.....	503, 725	463, 545	1, 553	1, 671	849, 539	830, 184	1, 123, 634	1, 220, 200	2, 617, 855	4, 237, 324	910, 178	823, 508
New Jersey.....	79, 707	82, 857	6, 362	6, 816	99, 976	101, 466	138, 818	142, 834	135, 228	194, 728	236, 059	219, 759
Pennsylvania.....	437, 654	409, 594	8, 832	10, 146	745, 946	770, 390	673, 547	702, 211	1, 631, 540	2, 610, 458	1, 031, 266	976, 150
Maryland.....	93, 406	87, 355	9, 829	9, 599	153, 778	145, 886	99, 463	101, 953	155, 705	224, 202	387, 756	381, 788
Kentucky.....	355, 704	272, 785	117, 635	89, 627	566, 844	425, 443	269, 215	191, 495	938, 990	774, 667	2, 330, 595	1, 922, 740
Ohio.....	622, 829	589, 242	6, 917	8, 376	963, 541	864, 206	696, 309	690, 337	3, 063, 887	4, 779, 662	2, 175, 623	2, 330, 664
Michigan.....	154, 168	155, 970	359	539	333, 632	365, 445	200, 635	220, 825	1, 467, 477	2, 465, 360	374, 664	339, 642
Indiana.....	409, 504	385, 690	18, 627	20, 563	678, 972	655, 870	491, 033	505, 711	1, 991, 175	1, 933, 790	2, 498, 528	2, 665, 096
Illinois.....	575, 161	575, 162	38, 881	49, 257	972, 550	1, 043, 946	532, 731	580, 343	775, 230	1, 627, 983	2, 279, 722	2, 421, 703
Missouri.....	361, 874	272, 429	80, 941	64, 056	823, 741	614, 355	345, 243	303, 020	937, 445	753, 084	2, 354, 425	1, 412, 653
Wisconsin.....	116, 192	146, 733	1, 019	1, 535	318, 870	431, 955	193, 996	266, 311	332, 454	692, 803	333, 957	400, 749
Iowa.....	174, 957	288, 678	5, 713	12, 206	347, 708	561, 338	188, 546	282, 819	958, 228	1, 032, 912	921, 161	1, 581, 741
Minnesota.....	17, 122	26, 486	395	659	78, 622	122, 284	40, 356	68, 495	13, 123	42, 388	101, 252	114, 753
Kansas.....	18, 882	24, 923	1, 430	2, 059	61, 133	97, 812	26, 726	49, 089	15, 702	43, 204	128, 309	160, 886
Nebraska Ter.y.	4, 522	7, 178	473	850	21, 590	42, 885	7, 125	13, 162	1, 757	5, 931	25, 965	34, 620
Total.....	4, 199, 141	4, 049, 142	301, 609	280, 847	7, 941, 148	7, 965, 439	5, 726, 994	6, 066, 748	15, 104, 272	24, 346, 391	17, 060, 035	16, 148, 712

THE TABLE OF STOCK FOR THE YEARS 1859 AND 1864.

The preceding table of farm stock for the year 1859 is taken from the returns of the census of 1860, and for 1864 has been estimated, taking the census returns as a basis, and those of our correspondents, published in the last bi-monthly report, as a means of aiding in computing the number on this basis. It is presented not with the same confidence in its approximation to correctness which we had in our estimates of the crops published in the September and October reports, but with the belief that it is entitled to much weight. The plan of taking these statistics could not have been put to a severer test than in the formation of this table. Political events checked the numerical increase of stock in 1861 and 1862, and the war has made heavy demands for horses and mules, and increased that for cattle and hogs. It has called into the greatest activity every effort to supply the want of cotton by the increase of sheep. This demand, the presence of war in some of the loyal States, and the scarcity of food in others, have created an unusual movement of stock from one State to another. The usual per cent. increase cannot be relied upon as a means of determining the numbers for 1864 for each of the States in the tables. Had this department been in existence in 1860, and every year since made estimates of the amount of the farm stock, more especially if the census returns for each county had been published, and estimates on these had been annually made, then the difficulties now existing would have been measurably removed, despite the existence of our national troubles, and their disturbing effects on stock production and consumption. But, nevertheless, we have much confidence in the general correctness of the table, and hence publish it.

A brief notice of each kind of stock, of the causes affecting its decrease or increase, and the practical lessons embodied in the returns, will not be without interest and utility.

1. *Horses*.—The decrease in these is 149,999 since 1859; but a greater decrease than this is estimated in Kentucky and Missouri. From the census returns, *one-fourth* has been deducted for the losses by war in these States in all kinds of farm stock. The Kentucky statistics for 1862 do not make it so much in horses, but in all other kinds so nearly approximate to it that we rely on this estimated decrease; for, so far as we can see, a heavier loss should have been experienced in horses than in most other stock.

This estimated decrease in Kentucky is 88,926 horses, and in Missouri 90,468—together, 179,394; leaving, therefore, an increase in the other loyal States of 29,895. But all the States have not increased. In the New England States there has been a decrease of nearly fourteen thousand, representing the gradual decrease of horses in most of these States. The decrease in New York and Pennsylvania show the purchases from them for the government, as do also the western States of Ohio and Indiana; but these latter indicate in addition the effects of scarcity of food. Michigan and Illinois are nearly the same as they were in 1859; the great increase of the latter has been brought down by government demand and transfer to other States. Wisconsin exhibits considerable increase, but that of Iowa is very great. Even for a western State, the growth of Iowa has been extraordinary, and it has, doubtless, received a large accession to its stock from immigration. With all of its past and recent troubles, Kansas presses steadily forward in prosperity; and Minnesota, far north as it is, is rapidly advancing in stock-raising.

The *future market* for horses is encouraging. A correspondent in Ohio informs us that farmers in his county were quitting horses and cattle, and directing their attention to mules and sheep. Now an evil in our agriculture is, that we are governed too much by present demand, and continue in

the course it directs too long, until an overstock is the result. From 1855 to 1860 horses increased very rapidly, particularly in the west, through the encouragement of State and county agricultural societies. In Ohio the increase of stock from 1850 to 1860 was as follows: Horses, 63 per cent.; cattle, 40; hogs, 15; and sheep decreased. This great increase of horses was felt on the markets in 1860 in the west. But even, if we should have peace soon, and with it a large number of government horses thrown back to the citizen by sale, yet still there will be a scarcity of horses in the loyal States for immediate work. The purchases by government have been of this kind only, and the country feels the drain. With the return of peace will soon come a demand for them from the south, which for some time will continue to grow stronger as its means of purchase increase. In these things the farmer should now see every encouragement to continue his production of this stock.

2. *Mules*.—Although the tables exhibit a decrease in this stock of 20,762, yet when we take into consideration the fact that the estimated decrease in Kentucky and Missouri, on account of the war, is 44,893, there will be seen to be a general increase in the rest of the loyal States of 24,131. The purchases of government have been large, and when peace returns, the demand for mules will be great for the southern markets. Much of what has been said of the future markets for horses is applicable to those for this stock; and hence the farmer who adheres to mule-raising will not regret his determination.

3. *Cattle*.—The increase in cattle is 24,291. But the returns of our correspondents in Kentucky and Missouri show a reduction since 1861 of three-tenths or thirty per cent. This makes the decrease in those States equal to 370,787, and making proper estimates for an increase in 1860 and 1861, there is an increase for the other States of 395,078.

Why the returns should show a less proportional decrease of cattle than horses and mules, can be seen from a moment's reflection. Although cattle are purchased largely by the government for the army, yet the soldiers, when in the family prior to going into the army, were consumers of beef, though not to the extent they now are. Hence the government purchases should represent this increased consumption only, and not the whole of it, as in the case of its purchases of horses and mules.

Ohio and Indiana show a decrease of 122,437, and Iowa the large increase of 213,630. But in the first two of these States the purchases of government have been very great, and although the increase in Iowa is large, yet it is not so great in these tables as exhibited in the returns made to the State by its assessors in 1862. They report the cattle, in which we include oxen, and exclude cows, at 605,222, being 44,884 more in 1862 than we place them in January, 1864. But we take as the basis of our estimates the census returns of 1860, which are generally lower than those of the States. Thus in Ohio, where the annual increase of cattle did not exceed 15,000, the census for 1859 places the cattle of Ohio at 243,000 less than the State enumeration for 1860.

The increase of cattle in the loyal States, since 1859 is so small that, for all practical purposes, it may be disregarded. The average increase annually from 1850 to 1860 was about $3\frac{1}{2}$ per cent. The wants of the government are great, and domestic consumption of beef is increasing, as may be inferred from the table published in our last report, showing the state of the New York cattle market. In 1862, the number of beeves in it was 236,009, and in 1863, 263,326. The foreign demand has increased largely. Our exports of beef in tierces and barrels have been as follows:

1861.....	\$1,372,546
1862.....	1,963,422
1863.....	2,807,042

This demand abroad will, in all probability, continue favorable, for the prices of meats in the English markets are sustained, whilst those of cereals or breadstuffs have declined. The following comparison of these prices is taken from the London Mark Lane Express, of March 7. *Flour* was then but 84 cents per 112 pounds higher than in 1850, a year of low prices, whilst *beef* was \$4 44 higher per 112 pounds, *mutton* 7½ cents per pound higher, *veal* 4½ cents per pound higher, and *pork* \$1 12 per 112 pounds higher, than they were in 1850. Here is a great difference, especially in beef and mutton, "the two principal articles of consumption," as the Express says. That there is an increased consumption of meats in Great Britain is seen in these prices, and in the fact that more lands are being put down in grass. As the consumption of our meats increases there, the more will they be liked.

All these statistics admonish our farmers not to neglect cattle-raising ; but keeping their attention constantly on the increase or decrease of any stock, and the causes of demand, to timely avoid a scarcity on the one hand, and an over-supply on the other.

4. *Cows*.—The general scarcity of butter and cheese, and their very high prices at this time, show that the home markets for them demand a larger supply. The increase of cows since 1859 has been 339,784 in the loyal States; but with these, as with other stock, the decrease in Kentucky and Missouri shows that the increase for the rest of the loyal States has been greater than this general increase indicates. The reported decrease of Missouri is, however, less for cows than for most other stock. The general increase of cows from 1850 to 1860 was 36 per cent., whilst our tables show it to be not quite 6 per cent. in the loyal States between 1859 and 1864.

The table published in the last report, page 37, shows that whilst the increase of butter last year was but *one-tenth*, the increase in price was *three-tenths*. The exports of *butter* to foreign markets have been as follows :

1861.....	\$4,190,745
1862.....	6,091,831
1863.....	7,176,648

And those of *cheese*, as follows :

1861.....	\$3,181,171
1862.....	4,673,889
1863.....	5,603,884

Surely, in all these statistics our farmers must see that too much care cannot be given to an increase of cows, and to butter and cheese manufacture.

5. *Sheep*.—There is no change in our agriculture so gratifying as the increase in sheep. By our table it is 9,242,119, or about 61 per cent., since 1859, most of it being in the last three years. All the stock raising States have participated in it, except Kentucky and Missouri. But the returns from the first show a present increase; and in the latter, that the decrease occasioned by the war has been arrested. The emigration of this stock from one State to another has been unusually great, for the want of cotton created such a demand for wool for home and factory manufacture, that every farmer, great and small, sought to have a flock of sheep, if he had none previously, or to have his old one enlarged.

The increase during this spring will add from four to five millions to the number in January; raising the whole number to nearly thirty millions, or double what it was in 1859 in the loyal States.

But little need be said as to the future markets for wool and mutton. Until a peace is conquered, and a fair crop of cotton is raised, wool will be remunerative, even if it falls considerably in price after peace and before the production of such cotton crop, for the general deficit in textile material

is great, as shown in the last report. But with peace will cease the government demand for clothing, whilst the scarcity of beef and pork will make the demand for mutton insure good prices for it. Whether, then, the old ewes, now kept longer than usual for breeding purposes, should be fattened and sold for mutton, and such wethers as have been kept longer than customary, on account of the high price of wool, is a question that will demand the consideration of all farmers, and a careful watching of political events. We shall keep them well advised of every fact connected with these subjects, and of such legislation by Congress as may tend to more firmly establish wool production in the United States.

If, as our supplies of wool increase, the imports of foreign wool shall be checked, and the introduction of foreign woollen cloths be lessened, the wool-grower may rest in better security, than if he is to be subjected to the competition of these, as he was prior to the rebellion.

Hogs.—The great destruction of the corn crop last fall by frosts and other causes has caused a decrease of this stock of 911,323. The high price for hogs in 1859 and 1860 created a large increase in the number during 1860. The low price of 1861 caused a great English demand for our pork and lard in 1862, and the advance in prices in consequence encouraged increased production in 1863. But the scarcity of corn not only checked it, but resulted in the decrease just stated.

In determining the state of future markets for pork, a reference to the present home and foreign markets gives every encouragement. As already stated, the number of hogs packed last season was about one million less than in 1862-'63, and they were much lighter in weight. The active demand and high prices for the products of pork indicate that the markets will be bare next fall.

Nor is the foreign trade less encouraging. From the general table of exports of meats and of lard, butter, and cheese, published in the last report (page 32,) we take the following table:

Year.	Total export.	Beef, butter, and cheese.	Products of pork.
1863.....	\$54, 607, 993	\$15, 587, 574	\$39, 020, 419
1862.....	46, 404, 102	12, 729, 142	33, 776, 960
1861	22, 740, 776	8, 744, 462	13, 996, 314

Keeping in mind that these values represent our own currency prices, and not the foreign gold standard of value, and that, therefore, a good deal of this great increase is due to this cause, still we see from the table in the last report that the increased quantities show a most satisfactory state of our foreign trade in the hog products.

With the return of our usual corn crops, therefore, our farmers need not hesitate in giving more than usual attention to hog-raising.

From this brief review of the condition of the markets in connexion with the tables of stock, we see how highly encouraging are the causes which ordinarily create profitable stock markets.

THE PORK-PACKING OF THE WEST.

The CINCINNATI PRICE CURRENT of April 6, contains the full returns of the pork packed in the west during the past season. The hog product is an interest of so great magnitude, that we give room for the summary statement of these returns.

Referring to the progress made in the raising of hogs, as evidenced by the number packed, the *Price Current* says: "Previous to 1861 the crop did not vary over four or five hundred thousand hogs, being sometimes one or two hundred thousand above, and then the same amounts below *two* millions; but in 1862 the packing run up to nearly *three* millions; in 1863 to over *four* millions, and this season it has fallen off over *three-quarters* of a million." These "rapid and extensive changes" it attributes to the effects of civil war upon commerce; to the rapid increase of settlements in the west, especially in Iowa, Illinois, and Missouri. We think there are other causes, showing that the *aggregate increase* in the production of hogs is not as great as here intimated, a fact not to be lost sight of in determining the future condition of this crop. Why should this great increase have manifested itself in 1862, when the price of pork was so ruinously low in 1861-'62? In these years, when hogs were sold by the farmers, there were no evidences of improvement to encourage the increased production of them. The prices of mess pork in New York averaged, during the year, as follows: 1859, \$16 38 per barrel; 1860, \$17 98; 1861, \$15 89; 1862, \$12 28; and 1863, \$14 40. The price during 1860 was very encouraging, and as the increase of horses and cattle had tended to over-production, the direction of stock increase turned to hogs. Hence a large increase was made in 1860 and 1861. In the fall of the last of these years, stock hogs in September were worth in the west about *one-third* what they were in September, 1860. This was the result of the war, chiefly, and partly from too great an increase. Many hogs were held over, which swelled the number in 1862. And *those packed* were increased by the fact that the heavy trade in live hogs to the south from Kentucky, into which State they were taken from western States, was entirely stopped by the war. These causes greatly increased the ratio of the number packed over that of production, in 1862 and 1863, when compared with that of former years. The falling off, therefore, in the past season was not due to the want of corn alone, as intimated by the *Price Current*, when it says: "Were it not for the bad failure of the corn crop last year, consequent upon the cold ungenial summer, and the killing frost of July and August, there can be no doubt the pork crop the past season, would have *exceeded that of any previous season by half a million of hogs.*" On the contrary, we think that with ordinary good crops of corn, there would have been a *falling off*. The returns of the correspondents of this department exhibit the fact, that the number in January last was 911,323 less than in 1859, in the loyal States. The number of fatted hogs last fall and winter brought to the *packing-houses* was not much diminished by the want of corn, as now appears, for these returns of our correspondents indicate that no great number of hogs have been kept over. The *Price Current* very correctly remarks that "farmers, owing to the high price of corn, sold off all the hogs they had which were in a condition fit to be disposed of, and the high prices tempted them to sell even those they intended for home use, to a very great extent, supposing that they would be able to buy the cured pork cheaper afterward, no doubt."

It is essential to understand the causes of the decrease of last season, and, as seen here, they show that under the most favorable conditions of the corn crop, hogs will be very scarce next season. Should peace return, and the southern demand for live and packed hogs be resumed next year, or the year following, there will be no more profitable stock than hogs.

The following are the tables from the *Price Current*:

SUMMARY OF HOGS PACKED IN THE WEST.

	1862-'63.	1863-'64.
Ohio.....	991,183	648,836
Iowa.....	404,861	313,331
Indiana.....	585,428	394,217
Illinois.....	1,472,834	1,273,390
Kentucky.....	130,920	126,019
Wisconsin.....	201,745	164,576
Missouri.....	297,611	370,736
	<u>4,084,582</u>	<u>3,291,105</u>
Decrease.....	793,477	

But this decrease does not show the entire decrease in the hog crop of the west. The shipments to the east must be taken into consideration also. The returns of these are yet imperfect. We have not yet got, says the *Price Current*, the shipments through Canada, nor by the way of Buffalo, but those by the way of Pittsburg and Dunkirk compare as follows from November 1 to February 1, each season :

	1862-'63.	1863-'64.
New York and Erie.....	136,007	64,181
Pennsylvania Central.....	171,496	34,141
	<u>307,503</u>	<u>98,322</u>

Here is a falling off of 209,181, and added to the decreased number packed, make the total decrease 997,658. The decrease in the average weight and yield of lard is as follows :

States.	Average weight per hog.		Yield of lard per hog.	
	1862-'63.	1863-'64.	1862-'63.	1863-'64.
	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>
Ohio.....	223 $\frac{1}{2}$	196 $\frac{26}{29}$	27	22 $\frac{1}{2}$
Indiana.....	209	182 $\frac{18}{39}$	27	19 $\frac{1}{3}$
Illinois.....	217 $\frac{1}{2}$	189 $\frac{1}{5}$	28	21 $\frac{1}{3}$
Kentucky.....	204	182	31	21
Missouri.....	220	188 $\frac{3}{4}$	29	23
Iowa.....	209 $\frac{1}{2}$	188 $\frac{5}{14}$	26 $\frac{1}{2}$	22 $\frac{5}{8}$
Wisconsin.....	224	202	33 $\frac{1}{2}$	23

The *Price Current* says : " We find that the average weight for the entire packing is 188 $\frac{26}{29}$ pounds, and the average yield of lard, per hog, 22 $\frac{1}{2}$ pounds. The decrease in the average weight is about 26 pounds per hog, as compared with last season, in round numbers ; but the accurate per cent. of decrease we find as follows :

"The aggregate weights of similar numbers of hogs, this season and

last, packed at points from whence the averages were furnished, compare as follows :

1862-'3, pounds.....	782, 601, 236
1863-'4, pounds.....	684, 775, 632
Decrease.....	97, 825, 604

"This is equal to about $12\frac{1}{2}$ per cent., which added to the decrease in the number packed in the west, is as follows :

Per cent. of decrease in number.....	$19\frac{1}{5}$
Per cent. of decrease in weight.....	$12\frac{1}{2}$
	<u><u>$31\frac{7}{10}$</u></u>

If to the decrease in the number packed in the west we add that of the number shipped by Pittsburg and Dunkirk, the entire decrease in number would be about $22\frac{8}{10}$ per cent.

The per-centage decrease of *lard* is as follows :

1862-'3, pounds.....	118, 016, 080
1863-'4, pounds.....	72, 874, 468
Decrease in weight.....	45, 141, 612

Being a fraction over 38 per cent. The head and gut lard is not included in this estimate. This was about 8 pounds per hog this season, and 12 pounds last.

The decrease, then, is as follows :

In number, per cent.....	$22\frac{8}{10}$
In weight, per cent.....	$12\frac{1}{2}$
In lard, per cent.....	38

It may be proper to add that the above table of the number packed does not indicate the number raised in a State. By reference to our tables in this report it will be seen that Indiana is the greatest hog-growing State, Illinois next, Ohio third, Kentucky fourth, Iowa fifth, and Missouri sixth, at this time. In 1859 Indiana was the first, Missouri second, Kentucky third, Illinois fourth, Ohio fifth, and Pennsylvania sixth.

ENGLISH IMPORTS OF WHEAT.

Their total amount for the last ten years, and the countries from which the principal supplies were received; capabilities of Russia to successfully compete with the United States.

The buoyancy of our own grain markets is so dependent on those of Great Britain, that their condition is always an object of interest to the American farmer. We therefore take the following tables from the *London Mark Lane Express*, which show the English imports of wheat for the last ten years, and the countries from which are received the principal amounts.

IMPORTS OF WHEAT INTO GREAT BRITAIN.

Year.	Total imports in quarters.	From United States.	From Prus- sia.	From Russia.	From Egypt.	From the Canadas.
1854.....	3,431,227	417,607	672,842	506,839	302,905	18,150
1855.....	2,667,702	248,906	536,123	-----	437,241	14,570
1856.....	4,072,833	1,279,150	221,681	759,459	534,603	111,819
1857.....	3,437,957	650,754	866,311	706,375	204,236	114,795
1858.....	4,241,719	594,644	625,976	612,217	464,644	100,821
1859.....	4,000,922	36,906	771,713	385,460	377,199	6,721
1860.....	5,880,958	1,499,385	1,149,532	1,301,146	197,265	183,422
1861.....	6,912,815	2,507,744	1,027,733	1,041,461	339,811	549,525
1862.....	9,469,270	3,724,770	1,450,484	1,327,158	759,036	861,452
1863.....	5,622,501	2,008,708	1,017,807	1,046,378	535,290	483,230
Total...	49,737,904	12,968,574	8,340,202	7,186,493	4,152,230	2,444,505

Whilst these tables exhibit our supremacy in supplying the demand of Great Britain for wheat, it may be well to consider the causes which, in the future, may affect that supremacy. The most prominent now is the growth of Russia.

Competition from Russia.—Although the tables show that Prussia supplies Great Britain with a larger amount of wheat than Russia, yet the Prussian exports are grown chiefly in Russia, in its Polish provinces. These are regarded as the best wheat-producing regions in the world; and they lie in the west of Russia, near to Prussia.

Referring to these imports from Russia, the *Mark Lane Express* says: "Russia has displayed a great tendency to increase; and probably, if the Russian Empire was in a more tranquil and satisfactory state, socially, financially, and politically, the strides made would be more rapid. Let the steam-plough once get to work, and the great plains of Southern Russia must pour an immense quantity of cereals upon the European markets."

The "great plains" here alluded to are the Russian *steppes*, or prairies. A German writer, who has travelled through them, thus describes them: "What a prospect! The sun's mighty ball had just appeared on the horizon, and the steppe extended, endless and immeasurable, in all directions." And an English writer says: "The whole of Southern Russia, or, as it is more frequently called, New Russia—as it is the latest acquisition of the great Czaric empire—must have, once on a time, been one huge lake, whose eastern and western shores rose in the Hindukush mountains and the Carpathians. When this mighty mass of water broke its way out, it left behind a mass of slime, formed of decayed organisms, which now forms the celebrated Tchernozon—the inexhaustible black earth, which lies upon a mumular limestone at a depth varying from a few inches to fifteen feet. *It is this land which supplies the greater portion of Europe with cereals without any artificial help.*"

It is here that the steam-plough may be so advantageously introduced, for these vast fertile plains have neither tree, nor bush, nor rock to obstruct it. These plains, however, are subject to greater climatic extremes than our northwest—to more intense droughts in summer, and more terrible snow-storms in winter.

Heretofore Russia has made but little progress in agriculture, for its agricultural laborers were serfs. Of a population in 1858 of 61,129,480, twenty-two and a half millions, or nearly thirty-seven per cent., were serfs; and of these, 20,150,231 were attached to the land, that is, sold and trans-

ferred with it. There were but 106,897 proprietors of serfs, so that there were 211 serfs to each one of them. Progress in agriculture might as readily be found among the slaves of the south as among a people thus held in bondage. But about two years ago the present Emperor of Russia abolished serfdom, and gave power to the freed serfs to purchase and hold lands. The progress now making in Russian towns in the establishment of schools points to the coming changes in agriculture. And recently he has abolished it in the Polish provinces. On the 15th of April every peasant in them was not only freed, but made the owner of all lands, and buildings thereon, which he cultivated.

With these recently awakened motives to agricultural improvement, the vast and productive plains of southern Russia and the Polish provinces must commence that progress alluded to by the *Mark Lane Express*, by the introduction of improved common ploughs, harrows, and drills; of the steam plough, the reaper, and the thresher; and by the gradual making of railroads, for in these plains there are no obstructions to render them costly. Doubtless it will be many years before this improvement can materially affect our exports of wheat to England, for, as stated in the last report, with regard to cotton, it is not production alone that gives a nation a foreign market, but its own ability to consume what that market may have to offer in payment. So long as the United States are superior as a consumer, it can regulate the conditions of mutual trade. But still Russian consumption, too, will increase with its progress in agriculture; and even as it now is, the tables of English imports of wheat show how great is the amount of wheat Russia, directly and indirectly, sends to Great Britain. Political convulsions may retard Russian progress, and general European wars may continue our supremacy, but an expectation of these should not divert our minds from the development of that market which is our best and most reliable one—the home market.

IMPORTS AND EXPORTS.

If statistics ever taught a truth that patriotism demands should be heeded, it is those we here present on the imports and exports of the country at New York, since January 1, 1864.

IMPORTS OF FOREIGN DRY GOODS AT NEW YORK FOR THREE MONTHS FROM JANUARY 1.

Entered for consumption.

	1862.	1863.	1864.
Manufactures of wool	\$5,385,960	\$6,030,178	\$10,516,319
Do.....cotton	2,062,735	2,226,489	3,289,580
Do.....silk	2,048,818	2,977,914	6,319,628
Do.....flax	1,568,058	2,672,456	3,192,897
Miscellaneous dry goods.....	486,226	963,641	1,487,584
Total.....	11,551,797	14,870,678	24,806,002

Withdrawn from warehouse.

	1862.	1863.	1864.
Manufactures of wool	\$1,566,107	\$877,907	\$1,722,016
Do.....cotton	1,208,261	477,613	867,578
Do.....silk	1,234,930	674,993	1,084,296
Do.....flax	570,718	381,408	863,480
Miscellaneous dry goods	183,861	115,287	159,156
Total	4,758,787	2,527,208	4,696,526
Add the above amount entered	11,551,797	14,870,678	24,806,002
Total thrown on market	16,310,584	17,397,886	29,502,528

To this amount for dry goods add the imports of other articles for the first three months of 1864, viz: \$31,068,186, and the total imports for these months are \$60,570,714 at New York. This is the value in gold. To ascertain the cost in currency, about fifty-five per cent. should be added. This would make the importations at New York, for the three months of January, February, and March, of the value of \$93,884,606.

Exports of domestic produce from January 1 to April 6 at the port of New York.

FLOUR. —From January 1	barrels..	536,068
Same time last year	do	678,823
RYE FLOUR. —From January 1	do	1,271
Same time last year	do	2,273
CORN MEAL. —From January 1	do	25,602
Same time last year	do	30,999
WHEAT. —From January 1	bushels..	3,709,529
Same time last year	do	3,834,855
CORN. —From January 1	do	72,001
Same time last year	do	2,158,650
RYE —From January 1	do	405
Same time last year	do	17,266
BARLEY AND MALT. —From January 1	do	130
Same time last year	do	51,139
OATS. —From January 1	do	11,977
Same time last year	do	100,045
PEAS. —From January 1	do	64,614
Same time last year	do	57,354
COTTON. —From January 1	bales ..	4,863
Same time last year	do	595
HOPS. —From January 1	do	11,317
Same time last year	do	12,677
CLOVER SEED. —From Sept. 1, 1863, to April 1, 1864	tons	1,204
From Sept. 1, 1862, to April 1, 1863	do	6,670
TIMOTHY SEED. —From Sept. 1, 1863, to April 1, 1864	bags	397
From Sept. 1, 1862, to April 1, 1863	do	2,976
TOBACCO. —From January 1	hogsheads	8,527
Same time last year	do	8,005
MANUFACTURED. —From January 1	pounds..	773,594
Same time last year	do	694,989

PROVISIONS, ETC., EXPORTED FROM NEW YORK.

Articles.	From Jan'y 1.	Same time last year.
Pork barrels	49, 556	52, 334
Beef..... do.....	10, 708	12, 439
Beef..... tierces	32, 136	30, 397
Cut meats..... pounds	58, 516, 683	100, 654, 855
Butter..... do.....	4, 856, 693	5, 564, 585
Cheese..... do.....	8, 509, 772	5, 792, 158
Lard..... do.....	12, 396, 456	51, 063, 332
Tallow..... do.....	12, 111, 570	11, 977, 795

The *value* of exports of domestic produce from New York from January 1 to the 4th of April, in *currency*, is as follows: 1862, \$34,903,292; 1863, \$54,137,715; 1864, \$42,734,973.

The national account sums up thus, for the first three months of 1864:

Imports	\$93, 884, 606
Exports	42, 734, 973
Balance against the people.....	51, 149, 633

Is it any wonder, then, that to meet the great demand of gold for exportation which such a trade creates, the difference between currency and gold widens every day, despite the efforts of government to lessen it. Here is a table showing that difference.

Table of the relative prices of gold since the government commenced the sale of gold certificates.

Date.	Gov. price.	Market price.			Certificates sold.
		Highest.	Lowest.	Closing.	
March 29.....	165½	166½	165	165½	\$99, 186 67
March 30.....	164	164½	163¾	164	18, 889 63
March 31.....	163½	165¾	163½	165½	424, 456 56
April 1.....	165	168¾	166	166¾	439, 144 80
April 2.....	166	166¾	166	166½	158, 290 00
April 4.....	165½	167¾	166	167¾	296, 840 00
April 5.....	165½	168½	167¾	168½	354, 710 00
April 6.....	166¾	171½	168	171½	385, 058 56
April 7.....	165	171½	169½	169¾	407, 710 00
April 8.....	165	169¾	169¾	169¾	417, 766 20
April 9.....	165	171½	169¾	171½	414, 113 87
April 11.....	165	172	170¾	172	502, 916 00
April 12.....	165	175	173½	174½	513, 011 03
April 13.....	165	180½	174½	179	632, 288 01

EUROPEAN AND AMERICAN MARKETS.

In order that our farmers may see the state of the markets, we shall, from time to time, give the prices of the leading agricultural products usually exported. They are not given so much to show the latest prices, as a guide

by which the farmer should effect sales, but to familiarize him with those matters which, in times of better foreign demand, he should not overlook.

The general condition of all the European markets for grains is a most decided dullness, and the latest accounts represent them as drooping. The Danish war has too remote a probability of becoming a general European war to give the slightest activity to the markets.

WHEAT.

England.—The average price of wheat at 42 places in Great Britain was 40 shillings and 1 penny per quarter of 480 pounds. Estimating the shilling at 24 cents, this price per American bushel of 60 pounds would be \$1 20. But American red and white winter wheat ranged at about \$1 32 to \$1 42 at London; and at Liverpool, at \$1 30 to \$1 65.

At San Francisco it was \$2 25 to \$2 40 per bushel, having advanced recently from 30 cents to 45 cents per bushel on account of the severe drought noticed more fully in our article on California.

At New York it was ranging from \$1 70 to \$1 86, currency value, being in gold value, by which it must be compared with English prices, at about \$1 13 to \$1 23, ascertained by estimating the discount of difference between gold and currency at about one-third.

Freight of wheat to Liverpool from New York was from 3 to 6 cents per bushel, and to London 10 cents. Making allowance for the rates of exchange, insurance, drayage, commissions, &c., it will be seen that the exportation of wheat affords but little profit at this time.

FLOUR.

In London the best article was worth about 3 cents per pound, and American flour in barrels ranged from \$4 32 to \$6; in Liverpool, from \$4 80 to \$5 28 and \$6 24.

In New York, from \$6 65 to \$8 30 per barrel, currency value; in gold, from \$4 43 to \$5 53; in San Francisco, \$4 50 to \$7.

Freight to Liverpool, from New York, was 24 cents per barrel, and to London 36 cents.

INDIAN CORN.

At Liverpool, corn was selling at from 78 to 89 cents per bushel of 56 pounds. In New York, from \$1 28 to \$1 30 in currency, equal to 85½ and 86½ cents in gold. At San Francisco it was \$2 25 per bushel.

PROVISIONS.

In London, new American butter was selling at 21 cents per pound; lard, in casks, at 11½ cents per pound; pork, per barrel, \$21 60; beef, per barrel, \$23 52 to \$26 88.

At New York, western and Ohio butter from 28 to 38 cents per pound, and State from 40 to 44; cheese, from 16 to 18 cents; lard, 13 to 13½ cents; pork, prime, from \$19 50 to \$21 per barrel, and from \$22 50 to \$25 25 for mess; beef, prime, from \$7 50 to \$9 for country mess, and from \$16 to \$19 for extra mess. These are currency rates; gold values would be about one-third less.

CALIFORNIA.

It is a matter of regret to this Department that as yet no regular correspondence has been established with enough of the counties of California,

and of other Pacific States and Territories, to justify a constant notice of their agriculture in these reports. Their climate differs so much from that of the Atlantic States, and their agriculture in so many particulars is unlike theirs, that such notice could not be otherwise than interesting to all.

From various sources we gather the following agricultural information of California. No rain of any consequence has fallen during the past winter and this spring. The winter rains usually commence falling in the last of November, and the crops are sown chiefly in December and January. Our correspondent in Los Angeles county writes that wheat and barley are not sown there yet, for want of rain, and that a large quantity of stock had perished. The Mercantile Gazette of San Francisco, of March 11, says :

"Since our last report no rain has fallen in this vicinity, nor elsewhere in the State, so far as we are advised, and apprehensions on account of the drought have assumed a very serious complexion. From all agricultural districts the same complaint reaches us, and in nearly all the prospects of the growing crops are felt to be dubious."

Prices of flour had advanced, in consequence, from \$2 to \$3 per barrel, and wheat from 30 to 45 cents per bushel. But the crop of last year's wheat was unusually large, both in store in the cities and on the farms. "We have good reason," says the Gazette, "to believe that Oregon still retains a very considerable portion of last year's wheat crop, of which free sales have recently been made at 50 cents per bushel, and at this writing round parcels are offering at Albany, and other interior towns, at 90 cents to \$1 per bushel."

The Marysville Express says :

"From all parts of the State there come serious forebodings of evil, growing out of the continued and, we may say, remarkable drought. So far no rain worth mentioning has fallen in the valleys, and but little snow has accumulated in the mountains. The roads are getting dusty, sprinklers are used in many of the cities, and communication is open across the Sierra Nevada at every point travelled during the summer months, while on the main travelled thoroughfares the stage and other vehicles make excellent time. The valleys and foot-hills, that at this season of the year are usually clad in verdure and floral colors, look brown and parched for the want of rain. Even at points near the seacoast, where the moisture from the ocean has hitherto been considered a protection against drought, the complaints are as loud as elsewhere of a dried up soil and blasted prospects. In the extreme southern counties cattle are dying by thousands for want of sustenance, many old rancheros having already lost more than half their stock. The grazing portion of the Sacramento valley is almost entirely destitute of grass, and herds of stock are compelled to travel as far as possible into the foot-hills, gathering from the shaded sides of the mountains a scanty subsistence. In Colusa and Tehama counties there are many localities where large herds of cattle travel from fifteen to twenty miles in order to procure water to drink, making regular trips from their pasture grounds to these watering places once or twice a week. Hundreds famish on the way and die on the waterless plain."

This is a sad picture ; but to avoid these misfortunes some winter food should be prepared. The wheat and other straws should be saved, and some hay provided. But copious rains may have fallen—we hope so—for from the following tables it will be seen that the average fall in March is comparatively great.

The following tables of the fall of rain in inches, omitting fractions, for thirteen years, are taken from the observations of Thomas M. Logan, M. D., at Sacramento, and show the average fall in each of the months :

1849-'50.....	36 inches.	September	0 inches.
1850-'51.....	5 "	October	0 "
1851-'52.....	18 "	November	2 "
1852-'53.....	36 "	December.....	5 "
1853-'54.....	20 "	January.....	3 "
1854-'55.....	18 "	February	2 "
1855-'56.....	14 "	March.....	4 "
1856-'57.....	10 "	April.....	2 "
1857-'58.....	15 "	May.....	1 "
1858-'59.....	16 "	June.....	0 "
1859-'60.....	22 "	July.....	0 "
1860-'61.....	16 "	August.....	0 "
1861-'62.....	35 "		

The hope that copious rains had fallen has not been disappointed. The San Francisco *Mercantile Gazette* of March 22, just received, says: "Since our report of the 10th instant, the long expected rains have commenced falling, and all serious apprehensions in regard to the supply of breadstuffs for the ensuing twelve months have ceased." These rains have been general in the State, and of ample supply, as believed.

CHICAGO AND THE NORTHWEST.

One of the wonders, even in this age, when progress has outstripped the anticipations of the most sanguine, is the growth of Chicago. It is not a representative of manufactures, nor of a foreign commerce, but solely of agriculture and the commerce created by it. Situated at a point of lake navigation which made it the receptacle of an immense and fertile agricultural region, seeking its markets in the eastern States and in Europe through Chicago, its growth has kept pace with the progress of that region, and therefore it is the representative of that progress as well as of its own.

Its more rapid advancement, however, since 1860, is not an indication of a corresponding development of the agricultural resources of the country, whose trade it has always enjoyed, or of more remote places added to it by new railroad communication, but of that disturbing influence upon commerce caused by the war. The navigation of the Mississippi having been closed in 1861, the products of the upper parts of that river, and beyond it, in Iowa and Missouri, as well as the more southern portions of Illinois, had to seek a new transit to the eastern markets; they therefore centred in Chicago instead of in St. Louis, and other minor places.

With this explanation, we republish the following table of shipments of breadstuffs from Chicago for the last twenty-six years, which we take from *Hunt's Merchants' Magazine*, and of provisions in the last seven years, compiled from different sources. How much of successful energy and toil, of wealth and of comfort, and of home happiness in the country life, is embraced in a single glance over these tables!

Shipments of flour (reduced to wheat) and grain from Chicago for twenty-six years.

Years.	Wheat.	Corn.	Oats.	Rye.	Barley.	Total.
	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>
1838.....	78					78
1839.....	3,678					3,678
1840.....	10,000					10,000
1841.....	40,000					40,000
1842.....	586,907					586,907
1843.....	688,907					688,907
1844.....	923,494					923,494
1845.....	1,024,620					1,024,620
1846.....	1,599,619					1,599,619
1847.....	2,136,994	67,135	38,892			2,243,201
1848.....	2,286,000	566,460	65,280			3,001,740
1849.....	2,192,809	644,848	26,849	31,453		2,769,111
1850.....	1,387,989	262,013	186,054	22,872		1,830,939
1851.....	799,380	3,221,317	605,827	19,997		4,446,291
1852.....	941,470	2,757,011	2,030,317	127,028	17,315	5,873,141
1853.....	1,680,998	2,780,253	1,748,493	120,275	82,162	6,412,181
1854.....	2,744,860	6,837,899	3,239,987	148,421	41,153	12,932,320
1855.....	7,110,270	7,547,678	1,888,533	92,032	20,132	10,633,700
1856.....	9,419,365	11,129,658	1,014,547	19,051	590	21,583,221
1857.....	10,783,292	6,814,615	316,778	17,993		18,032,678
1858.....	10,909,243	7,493,212	1,498,134	127,008	7,569	20,035,166
1859.....	10,759,359	4,217,654	1,174,177	478,162	131,449	16,753,795
1860.....	16,054,379	13,743,172	1,039,779	129,156	290,211	31,256,697
1861.....	22,913,830	24,186,382	1,665,384	422,492	185,293	49,363,380
1862.....	22,902,765	29,451,610	3,112,666	871,796	532,195	56,477,111
1863.....	17,925,336	24,444,147	7,574,994	835,133	668,735	50,548,345

Pork and cattle trade of Chicago.

Years.	Hogs received.	Hogs shipped.	Hogs packed.	Cattle received.	Cattle shipped.	Cattle packed.
1858.....	540,486	192,013	99,262	140,534	42,638	45,503
1859.....	271,204	110,246	179,684	111,694	37,584	51,606
1860.....	392,860	227,164	151,339	177,101	97,474	34,623
1861.....	675,902	289,094	271,805	204,579	124,146	53,754
1862.....	1,348,890	491,135	505,691	209,655	112,745	59,687
1863.....	1,532,504	678,288	854,216	306,592	139,302	*167,290

* Packed and city use.

The year 1863, in the table of pork and cattle trade, has been taken from the Chicago Journal of Commerce, which reported the numbers for the year only. As stated in the Cincinnati Price Current, the number of hogs packed at Chicago in the season of 1862-'63 was 970,264, and of 1863-'64 was 904,657.

Table showing the condition of stock, &c., on the 1st of April, 1864.

STATES.	MAPLE SUGAR AND MOLASSES.		CATTLE.		SHEEP.	HOGS.	CLOVER.	
	Average amount of maple sugar made this season.	Average number of gal- lons of maple molasses made this season.	Average number of fatten- ing cattle in March.	Average condition of stock cattle in March.	Average condition of sheep in March.	Average condition of hogs in March.	Average amount of acres sown in clover this spring.	Average condition of clo- ver fields in March.
Maine	11	11	8	11	12	9	.....	12
New Hampshire..	11 $\frac{1}{6}$	11 $\frac{1}{6}$	7	11	9 $\frac{3}{4}$	11	9	11
Vermont .....	.....	.....	7	10 $\frac{1}{10}$	9	9	.....	.....
Massachusetts...	10	11	7 $\frac{1}{8}$	9	10	9	9	9
Rhode Island...	.....	.....	7	.....	.....	.....	.....	.....
Connecticut	12	12 $\frac{1}{8}$	6 $\frac{1}{4}$	11	13 $\frac{1}{2}$	11	.....	.....
New York.....	12 $\frac{1}{2}$	11 $\frac{1}{2}$	7 $\frac{1}{2}$	11	11	9	10 $\frac{1}{2}$	9 $\frac{1}{2}$
New Jersey .....	.....	.....	7	10	10	10	11	11
Pennsylvania ...	13 $\frac{1}{2}$	13 $\frac{1}{2}$	7	9	9 $\frac{1}{2}$	8	9	7 $\frac{2}{3}$
Maryland .....	.....	.....	9	9	11	9	10	9
Kentucky.....	10 $\frac{1}{2}$	11	6	7	9	9	11	8
Ohio	11	10	7	8 $\frac{1}{2}$	10	8	9 $\frac{3}{8}$	7
Michigan	12	12	7	9	10	7	9 $\frac{1}{2}$	8
Indiana.....	12	11 $\frac{3}{8}$	7	7	9	7	11	8
Illinois	11 $\frac{1}{4}$	11 $\frac{1}{8}$	7 $\frac{1}{2}$	10	10	7 $\frac{1}{2}$	11	8
Missouri	13	12	8	8	9	8	10	8
Wisconsin	10	10	8	9	10	9	11	10
Iowa	13	13	7 $\frac{1}{2}$	8 $\frac{1}{2}$	10	8	12 $\frac{1}{2}$	9
Minnesota	10	10	9	10	10 $\frac{1}{8}$	9 $\frac{1}{2}$	.....	.....
Kansas .....	.....	.....	10	10	10	9	15	10
West Virginia...	15	13	7	8	10	9	8	7
Nebraska Ter'y...	.....	.....	7	9	12	8	11	10

Table showing the condition of bees and general features of the weather, during February and March, 1864.

STATES.	BEES.		WEATHER.									
	Average number of bee stands killed.	Average condition of living stands.	February.					March.				
			Favorable.	Cold.	Dry.	Wet.	Show.	Favorable.	Cold.	Dry.	Wet.	Show.
Maine	2½	10	26	6	5	6	1	23	6	7	5	1
New Hampshire	2½	8	15	3	5	4	1	10	3	7	1	3
Vermont	2½	11¾	22	5	6	1	2	25	7	4	0	0
Massachusetts	2½	8	15	3	5	4	1	10	3	7	1	3
Rhode Island			12					10	2			
Connecticut	0	11	7	0	3	2	0	7	3	0	2	0
New York	1½	9½	71	34	11	9	7	63	35	6	26	8
New Jersey	1	10	24	10	9	1	0	21	12	1	8	2
Pennsylvania	2¼	8	71	41	8	14	6	52	35	5	27	25
Maryland	2¼	8	20	9	7	4	0	11	1	9	13	0
Kentucky	3⅝	7	12	10	4	3	1	7	12	7	5	2
Ohio	2½	6	88	48	35	20	8	68	64	15	41	11
Michigan	3⅞	8	39	19	7	0	3	27	26	8	3	8
Indiana	4	7	69	43	35	15	2	54	56	0	29	6
Illinois	4	7	75	32	50	7	2	43	64	26	32	9
Missouri	3½	6½	22	4	25	4	1	14	20	17	6	3
Wisconsin	4	8	31	17	5	2	9	24	23	6	9	2
Iowa	3¼	8	76	28	28	7	5	51	39	16	26	10
Minnesota	2	10	13	5	23	1	0	9	11	8	10	6
Kansas	2	9½	26	2	11	1	0	10	10	8	8	4
West Virginia	3	7	6	5	3	1	1	1	5	2	8	4
Nebraska Territory	2½	10	1	3	7	0	1	1	2	5	3	0
			741.	327.	292.	106.	51.	541.	439.	164.	263.	107.

REMARKS ON THE FOREGOING TABLES.

The last circular contained various questions relative to fruits, grains, and stock. Some of these, it was known, could not be answered definitely; but as statements were made which represented the fruit crop of the west as destroyed, and its wheat crop much injured, it was proper to ascertain, at the earliest moment, what grounds there were for these statements. Some of these questions had necessarily to be renewed in subsequent circulars, in order to ascertain the condition of the growing crops at more subsequent periods of their growth; but the backwardness of the spring has made it impossible to answer several inquiries as definitely as was desired. For these causes, the next circular will be much like the last one as to the subjects of its inquiries, and on this account it is not necessary to publish a portion of the table, made from the answers to the last circular, especially as to fruits and grain crops. But the condition of these on the 1st of April, when the returns were sent to the department, will be stated generally.

1. *Fruits*.—In the eastern States, Maryland, and in most sections of the middle States, the fruit buds are not seriously affected. Indeed, in some of them they are in a better condition than is usual at this time of the year. They promise an excellent crop. But in the west and northwest, the injury both to the trees and fruit buds is undoubtedly great, as much so as ever before experienced. The extreme rigor of the winter there, in its most extraordinary changes, has been noticed heretofore, and will be seen more fully in the instructive tables furnished by the Smithsonian Institution, in the meteorological part of this report. The apple buds have been injured; those of the peach killed, and many of the trees too, and pear and cherry trees seriously affected. It is not necessary, however, to particularize localities, that the extent of their injuries may be noticed, for fuller and more certain returns will be given in the next bi-monthly report.

2. *Grain crops*.—The crops sown last fall are promising in the eastern States, for the winter has been favorable to them. But in Pennsylvania and Maryland, and in all the western States, except Wisconsin and Minnesota, where spring wheat is chiefly sown, the condition on the first of April was unfavorable. General apprehension existed that the severe weather in February and March, when the ground was bare of snow in large districts, had injured it seriously; but where there was snow it was doing well. We think there is an overestimate of the injury, for the cold, although severe, was steady, calculated to turn the blades brown, but not to destroy the root. In this belief we have the more confidence from a few of the later returns. One of these says that wheat thought to be killed was looking better. The dry cool weather of March was unfavorable to restoring its appearance, but the snows and rains of the latter part of the month and of April will do much to revive it, if in the condition we hope. But it is a winter that will test the value of *drill* sowing over *broadcast*, and of *early* over *late* putting in. To these matters we hope our correspondents will give special attention.

Rye, barley, and clover.—These have not suffered as much as wheat, but their condition on the first of April was not as favorable as usual. The amount of clover seed sown this spring is a full average.

3. *Cattle*.—A reference to the table will show that there is a marked decrease in the number of fattening cattle at this season of the year. This was to have been expected from the scarcity of food in the west, the high price of it in the east, and of the decreased number of cattle from the government demand. The returns indicate a decrease of nearly three-tenths, or thirty per cent., in Pennsylvania, Ohio, Indiana, and Michigan; of two and a half tenths, or twenty-five per cent., in New York, Iowa, and Illinois; and

of two-tenths, or twenty per cent., in Missouri and Wisconsin. A decrease of this amount must be felt in the markets even where the consumption of beef has been lessened by its advanced price. One of the results must be an increased demand for mutton.

The *condition* of stock cattle is much below the usual average at this season of the year; and this, with the lateness of the spring, will delay the appearance of the grass-fatted cattle in the markets.

4. *Sheep*.—The high price of wool, and the greater comparative value of this stock, have induced a livelier interest in it on the part of the farmer; and, as the table shows, it is in a good condition—above-an average. This secures the usual number of pounds of wool per head, and the per cent. increase of lambs that has obtained since 1861, when the demand for wool gave rise to unusual care.

5. *Hogs*.—The condition of these in the eastern States is fair; but in the middle and western States, especially in the largest hog-producing, it is by no means favorable. Want of corn is the cause; but of the inducements to better attention, enough has been already said elsewhere in this report.

6. *Bees*.—The introduction of Langstroth's and other improved hives, and a better knowledge of the bee itself, have had a beneficial influence on bee culture. But the wet and cool spring of last year, and the untimely frosts of the autumn, by destroying the buckwheat, sent the bees into winter but little prepared to endure the severity of the cold storms that prevailed through it.

The first column shows *the loss in hives*, in tenths, directly stated, $2\frac{1}{2}$ meaning two and a half tenths, or twenty-five per cent.; the second column their *condition* indirectly shown, 8 meaning two-tenths, or twenty per cent. below the usual average condition in the spring. These losses and this unfavorable condition must be discouraging; but the energy and zeal so characteristic of the American farmer will not suffer a neglect of this interesting and useful stock.

7. *Maple sugar and molasses*.—Although the season was not closed when the returns were sent in, yet the table sustains the declarations of our correspondents that greater preparations had been made for this season's sugar-making than for any previous one. So important is this product at this time, that we renew the questions in the next circular, that the whole of the season, especially in the most northern States, may be fully reported.

8. *Weather*.—The *general* features of the weather in February and March will be seen from the number of weeks reported in the table. The *favorable, cold, and dry* predominate largely over the *wet and snow*. Whilst this was advantageous to the ground in mellowing and rendering it fit for early ploughing, yet just when the plough commenced running the rain and snows came, which should have fallen earlier, and have delayed the operations of the farm. This is always unlucky to the farmer, as it piles together the hard labors of the spring; at this time it is unfortunate, because of the scarcity of labor. It is, however, favorable to wheat and other fall-sown crops, which suffered from the general cold and dryness of February and March.

For the *details* of the weather during these months, we invite attention to the admirable meteorological report from the Smithsonian Institution.

METEOROLOGICAL REPORT.

FROM THE SMITHSONIAN INSTITUTION.

The meteorological condition of the northern hemisphere at the end of December, 1863, and the beginning of January, 1864, was one of the most remarkable to be found on record. In most cases in which a cold polar current is flowing southward and reducing the temperature, it is confined to a comparatively narrow breadth, and at the same time warm equatorial currents are flowing northward over contiguous spaces, and thus restoring the general equilibrium of temperature and of pressure by opposite and parallel streams. But at the time above mentioned, from the facts thus far collected, it would appear that an unbroken sheet of cold air, extending from Eastern Europe, on the one side, to at least the Sandwich Islands on the other, was flowing southward, and everywhere in this wide-extended space was simultaneously reducing the temperature to a degree much below its normal monthly mean.

This phenomenon well deserves a special investigation. The data should be collected by which to determine the limits and character of the polar current as well as the condition of the weather at the time in all other accessible parts of the world. Fortunately, by means of the organized systems of meteorology which have been established in almost every country, this data can be obtained in the course of a few months.

In continuation of the notices of the severe cold and extensive snow-storm in the end of December and beginning of January, mentioned in the last report, extracts are given below from registers at many stations, showing the prevalence and extent of the storm. Following these extracts is a table containing the days on which snow and rain fell during the last week in December and first week in January; another table showing on what days in December and January the thermometer was at zero, or lower, and the number of days in both those months on which it was as low or lower than the freezing point; also another table giving the temperature, and the direction and force of the wind, at the hours of observation on the first day of January and at 7 a. m. of the second, which at nearly all the stations embraced the lowest temperature. The deepest snow was east of the Mississippi river and north of the Ohio, and the severest cold was in the same region and further west; but the depression of temperature and the atmospheric disturbance extended over the whole country. At Mirador, in Mexico, near Vera Cruz, the mean temperature of the first day of January was nearly five degrees lower than on any other day in the month, except the nineteenth, which was the same as the first; and at St. John, New Brunswick, New Year's Day "was singularly strange, even for a winter day in St. John." The record from Bermuda for the first week in January has not been received.

WEATHER AT THE END OF 1863 AND BEGINNING OF 1864.

Saint John's, Newfoundland.—January 1, fine, cold; light wind. 2d, gale all day. 3d, very fine, but cold; light wind.

Saint John, New Brunswick.—An inch and a half of snow fell on the 28th of December, three-tenths of an inch on the 29th, an inch and a half on the

1st of January, and an inch and nine-tenths on the 5th. The first day of January was singularly strange, even for a winter day, in St. John, the changes being extreme, sudden, and unusual. Early morning had a fresh northeast wind, and was cold. About 9 a. m. the wind veered to the southeast, and the barometer began to fall rapidly and the thermometer to rise. In the forenoon there was a light fall of soft snow, and the wind increased to a heavy gale. In the afternoon the wind changed to rain, which continued to fall, in heavy, pelting showers, to dusk; and about 5 p. m. there were three or four vivid flashes of lightning to the eastward, followed by as many loud peals of thunder. Shortly after this the rain began to fall afresh and with much greater force, and continued to near midnight; when the wind suddenly shifted to the northwest, increased in violence, and raged with tremendous fury all night and the whole of the next day. Temperature on the 2d of January, 6 a. m., 18°; 2 p. m., 10°; 10 p. m., 5°. On the 3d, 6 a. m., 4°; 2 p. m., 15°; 10 p. m. 13°.

Michipicoton, Canada West.—Light snow on the 29th, 30th, and 31st of December. Calm in the morning of the 31st; gentle breeze from the east at 2 p. m., and at 9 p. m. strong wind from the same quarter.

West Waterville, Maine.—Snow in the night of December 31, and rain on the 1st of January.

Cornishville, Maine.—January 1, snow and rain from 1 a. m. to 11 p. m.

Lisbon, Maine.—January 1, snow and rain from 2 a. m. to 5 a. m., and rain from 6 a. m. to 4 p. m.

Williamsburg, Maine.—January 1, snow from 4 a. m. to 11 a. m., and rain from 11 a. m. to 8 p. m.

Steuben, Maine.—January 1, quite a rain to-day; raised the river considerably. January 2, almost a hurricane from the northwest at night.

North Littleton, New Hampshire.—January 1, rain and snow to a slight extent.

Littleton, New Hampshire.—January 1, rain and snow from 3. p. m. to 8 p. m.

Stratford, New Hampshire.—January 1, rain and snow from noon to 6.20 p. m.

Brandon, Vermont.—January 1, high wind all last night and this forenoon from southeast; changed to west a little before 2 p. m.; slight rain before daylight to 2 p. m. January 2, sharp cold wind from southwest, rather uncommon; began to grow cold from 2 p. m.

Craftsbury, Vermont.—January 1, half an inch of rain fell to-day.

Topsfield, Massachusetts.—January 1, rain began last night and continued until half past 10 this morning.

Sandwich, Massachusetts.—December 31, it began to snow about 10 p. m., and when the year closed it was snowing violently, but it soon changed to rain and continued until 10½ a. m. January 1.

Providence, Rhode Island.—December 31, overcast through the day; began to snow at 9 p. m., and continued until midnight; four inches fell, then rain.

New York city.—December 31, snow began at 4.25 p. m. and continued until 7.45, when it changed to rain.

Skaneateles, New York.—January 1, commenced with a hurricane, which continued all day and night; temperature at 7 a. m., 41°, at 9 p. m., 1°.

Oneida, New York.—January 1, snow began last night and continued until 9 p. m. to-day, falling to the depth of half inch.

Jamestown, New York.—December 31, rain, from 10 a. m. to 6 p. m., half-inch. January 1, snow, from 1 a. m. to 12 m., four inches.

South Hartford, New York.—January 1; the month commenced with a fine drizzling rain which continued until 2½ p. m.; thermometer indicating 42°, with a gentle breeze from the S.S.W. At that hour the wind veered fairly to

the southwest, blowing a gale, and the mercury falling rapidly. At 7 a. m. of the 2d the wind still blowing a gale from the southwest, the temperature had fallen to zero, being a change of 42° in seventeen hours.

Theresa, New York.—December 31, dark clouds in the east and south horizon; at 1 p. m. light northeast breeze all day. January 1, stormy; eight-hundredths of an inch of rain fell.

Fort Ann, New York.—No rain or snow from the 29th of December until the 5th January.

Rochester, New York.—December 31, clouds look stormy; snow at $1\frac{1}{2}$ p. m.; some hail until eve; high wind from southwest until midnight, and some snow. January 1, an extremely unpleasant day; a strong westerly gale prevailing all last night and to-day, with a rapidly decreasing temperature, the mercury having fallen 34° between 7 a. m. and 11.50 p. m.; commenced snowing at 3 p. m.

Haddonfield, New Jersey.—January 1, drizzle at 8 a. m. of short continuance; 7 a. m. clouds, with send to northeast. Farmers ploughing sod readily to-day; no frost in the ground; 9 p. m. clear. January 2, in the morning cirro-stratus forming and extending in long lines southwest and northeast through the zenith. At 12 m. numerous bands of smaller slender rolls of cirri extended across the main long broad cirrus parallel to each other at short intervals, very curious, warp and woof-like, with the main cloud. At 2 p. m. these straight parallel cirri-strati had been all deflected in the middle, and bent in beautiful curl-like curves towards the northeast. Clear at 7 a. m., and 9 p. m. wind southwest. Ice formed last night thick enough to bear a man.

Newark, New Jersey.—A fall of an inch and a quarter of snow in the afternoon of December 31, turning to rain, and continuing till after midnight.

Progress, New Jersey.—December 31, heavy white frost; 11.35 a. m. snow from the north, melting as it fell; at 30 minutes p. m. light rain; from 7 p. m. to 8 p. m. gale from the east, rain heavier than before; at 9 p. m. rain-gauge indicated a fall of thirty-four hundredths of an inch, and storm increasing in violence; rain ceased in the forenoon of January 1.

Passaic Valley, (two miles southwest of Paterson,) New Jersey.—December 31, cloudy all day; rain at 3 p. m., wind brisk. About a quarter of an inch of snow fell before it began to rain.

Pittsburg, Pennsylvania.—December 31, cloudy; from 7.15 a. m. strong gale and heavy rain; from 8 p. m. violent gale.

Nazareth, Pennsylvania.—December 31, snow from 12 m. to 7 p. m., when it began to rain. January 1, this morning the snow has entirely disappeared.

Fleming, Pennsylvania.—December 31, rain from 8 a. m. to 11 p. m.

Connellsville, Pennsylvania.—January 1, rain from midnight to 3 a. m. this morning.

Silver Spring, Pennsylvania.—December 31, snow from 10 a. m. till night, one inch.

Tioga, Pennsylvania.—December 31, a little snow and rain. January 1, morning warm and pleasant; afternoon very cold; evening violent gale, and thermometer eight degrees below zero; a change of fifty degrees since 7 a. m.

Harrisburg, Pennsylvania.—December 31, snow at $9\frac{3}{4}$ a. m.

Cannonsburg, Pennsylvania.—December 31, wind southeast all day; violent wind from the southwest during the night.

Oil City, Pennsylvania.—December 31, rain and snow 10 a. m.; misty and rainy through the day; very high winds on the high lands. January 1, snow from 8 a. m. through the day interrupted.

Byberry, Pennsylvania.—Commenced to rain at 11 a. m., ended in night;

one and a half inch fell. January 1, rainy in the morning, blew up cold in the afternoon.

Kingston, Ohio.—December 31, about 10 o'clock p. m. a heavy wind began to blow, and the weather began to turn cold.

Urbana, Ohio.—December 31, a sudden and extreme change during the night. At 9 p. m. the thermometer 34° ; the barometer was at its lowest point, and began to show the change upwards, and at the same hour the rain (which had been falling since 9 a. m.) changed to snow. During the night the wind blew a gale from the west. At 7 o'clock a. m., January 1, the thermometer was down to 11 below zero, and the barometer had gone up from 28.12 to 28.83.

Cleveland, Ohio.—December 30, clear. December 31, overcast.

New Lisbon, Ohio.—December 30, beautiful day. December 31, rainy from 8 a. m. to 2 p. m.

Hillsborough, Ohio.—December 31, rain a. m. and p. m.; sleet and snow at night, with very high wind.

Eaton, Ohio.—December 31, rained all day, and about $7\frac{1}{2}$ p. m. a furious snow-storm set in, with the most sudden and remarkable change of temperature ever witnessed in this country. At 7 p. m. the mercury stood at 45° . It was not noticed at 9 o'clock, but it must have been down nearly to zero. At 7 a. m., January 1, it stood -16° , being a change of 61° ; and I am satisfied it was almost, if not quite, as cold at midnight as in the morning.

Bowling Green, Ohio.—December 31 was warm; slightly misty from 11 a. m., and the rain did not fairly commence until in the evening, although drops of water were perceptible most of the afternoon. At 9 p. m. every appearance indicated a rainy night. At about $10\frac{1}{2}$ p. m. the rain changed to snow, and fell about one inch in depth. At 7 a. m., January 1, the thermometer was -1° ; at $8\frac{1}{2}$ a. m., -12.5° ; at 2 p. m., -10° ; at 9 p. m., -7.3° , making it the coldest day in the past thirty years. At 7 a. m., January 2, it stood -15° , being the lowest point reached. From this time it grew warmer, and on the night of the 4th we had about three and a half inches of snow; the 5th clear and pleasant.

College Hill, Ohio.—December 31, rain from 9 a. m. to 8 p. m.

Welshfield, Ohio.—January was ushered in by a violent north wind, which continued in unabated fury, varying to west and southwest till the evening of the second day. The temperature fell from 40° , December 31, at 10 p. m., to -14° , January 2, 4 a. m.; 54° degrees in thirty hours. The people being wholly unprepared for so sudden and so great a fall of temperature, much damage was done. Crops stored up in cellars were injured, and some animals perished. Rain from 8 a. m., December 31, to 4 a. m., January 1.

Ypsilanti, Michigan.—December 31, the snow-storm of this morning turned to rain at about 2 p. m., and continued until near 12 p. m., when the wind, which had been from northeast all day, changed to southwest with a heavy gale, and blew tremendously the rest of the night.

Monroe, Michigan.—December 31, rain from 12 m. this day till an hour after midnight.

New Castle, Indiana.—December 31, slow and drizzling rain commenced at 8 a. m. and continued till $5\frac{1}{2}$ p. m., when sleet and snow began to fall, which soon turned into a violent snow-storm, and continued all night with very violent wind from the west, northwest, and southwest, the wind being very fitful. On Friday morning, January 1, at 5 a. m., the thermometer stood at 19 degrees below zero, being a fall of fifty-eight degrees from 2 p. m. of December 31, or in fifteen hours.

Spiceland, Indiana.—December 30, pleasant winter weather. December 31, rain commenced about 5 a. m., with the wind from the east, and con-

tinued nearly all the time till 5½ p. m., at which time the wind shifted to westerly, and snow commenced falling. After night wind from northwest and very heavy. Snow too much drifted to ascertain the depth with certainty; it is thought to be about four inches.

Rockville, Indiana.—December 31, 6½ a. m., drizzling rain; 7.15, sleeting; 7.30, snowing, flakes large and fleecy; continued till 11½ p. m. January 1, at 7 a. m., two very bright mock suns in the east and south; also two mock suns at sunset.

South Bend, Indiana.—Seven inches of snow on the 31st of December. Temperature at 9 p. m., 18°; fell thirty-eight degrees by 7 a. m. next morning, January 1.

Winnebago, Illinois.—December 30, sky cloudless till about 4 p. m., when a low bank of clouds was observed along the southwestern horizon, which overspread the sky during the evening. December 31, a severe snow-storm set in soon after midnight and continued through the day; wind, N. NW., 4 to 6. The snow ceased soon after nightfall. The wind continued blowing a gale through the night, with heavy drift and increasing cold. The day following (January 1) was one of the most severe on record in this latitude.

Tiskilwa, Illinois.—December 31, snow all day, with high wind from the northwest.

Ottawa, Illinois.—January 1, weather intensely cold; one man in this city froze to death but a short distance from his own house; also a man and his wife, and their span of horses, within two miles of this station. Snow, of the 30th and 31st December and to-day one foot in depth. It is badly drifted, and the cars have stopped running.

Galesburg, Illinois.—Very cold high wind night of December 31; snow in motion; cattle, horses, and hogs suffered greatly, and many froze. The roads were blocked up, and no mail was received from Chicago for a week. Such a storm and such cold are seldom experienced here.

Sandwich, Illinois.—One of the most terrible snow-storms ever witnessed here, accompanied with severe cold, visited us at the close of the old year and the beginning of the new. It began the last day of December to storm moderately from the north; at 3 a. m., January 1, it began to increase in violence, and continued until it became impossible for man or beast to withstand its violence; at 7 a. m., January 1, the mercury marked —26°, and snow falling rapidly; railroads became blocked, and the Chicago, Burlington and Quincy road was so obstructed that for one week no mail express passed this (Sandwich) station. Many cattle perished in the corn-fields; stock in transportation on the cars perished by hundreds, and thousands of fowls froze upon their perches. The depth of snow falling here was about two and a half feet. The extreme cold continued about eight days. Peaches are destroyed, that is, the fruit germs, and in many instances the trees are ruined. The fruit germs upon nearly all early varieties are also destroyed. Early Richmond cherries also, and probably plums. Peaches are said to be destroyed more than a hundred miles south of Memphis.

Pekin, Illinois.—December 31. I was up several times last night; the wind increased in force; the snow came faster each time I looked out; 4 p. m., the wind is from northwest; it is so severe that I cannot at times walk against it without using all my strength. I do not remember ever experiencing so severe a snow-storm; it continued about the same to midnight. After 8 p. m. the wind was from the west.

Upper Alton, Illinois.—On the afternoon of December 30, about 2 o'clock, it began to sleet, and in the evening a glaze of ice covered everything. On the morning of the 31st the ground was covered with snow and drifting.

Augusta, Illinois.—December 31. From 9 o'clock last night to sunrise this morning, snow fell to the depth of about seven or eight inches, and it con-

tinued to snow, more or less, nearly all day; the wind blew very hard, and the snow drifted so much that it was very difficult to tell the average depth; it was a very severe storm; I remember but one equal to it since I have resided in Augusta, from 1833 to the present time.

Waverly, Illinois.—A severe snow-storm began at 10 p. m. on the 30th December, and continued over the 31st, the wind blowing almost a gale some of the time from the northwest, with the thermometer almost at zero; about ten or twelve inches of snow fell, and it lays piled up in every conceivable shape. The thermometer -24° this morning, (January 1.) The storm must have obstructed railroads and killed much stock for farmers.

Canton, Missouri.—Snow from $9\frac{3}{4}$ p. m., December 30, to $4\frac{1}{2}$ p. m., December 31, five inches. January 1, clear all day; parhelia at sunrise and sunset. Snow again from $3\frac{1}{4}$ p. m. to $9\frac{1}{2}$ p. m., January 2, and from 4 p. m., January 3, to 9 p. m., January 4—two and a half inches.

Harrisonville, Missouri.—No snow after the 27th of December till the 2d of January; on the 2d three inches fell from 7 a. m. to 8 p. m. No high wind is recorded.

Athens, Missouri.—This month of January is the coldest weather that has been experienced here for a number of years. From the 23d of December to the 23d of January the ground has been covered with snow to the depth of seventeen inches on a level, and drifted to the height of the fences. Many roads became impassable, the general depth of the drifts being six feet. We have had as deep snows before, but not so cold, nor drifted so badly. The timber was loaded down with snow, and much of it broken, especially the pin oak and black jack, which had the leaves on. Great numbers of cattle, sheep, hogs, and fowl have perished, and many persons have been frozen to death. Twelve inches of snow fell on the 28th of December; none on the 29th or 30th; one inch on the 31st; one inch on the 1st of January; an inch and a half on the 2d; none on the 3d; half an inch on the 4th.

Manhattan, Kansas.—December 25th, rain, turning to snow, continued till the 27th, making three inches of snow; no snow or rain again till the 4th of January, when three more inches fell, and none afterwards till the 28th. The strongest wind recorded is 4 northwest on 30th and 31st of December.

Lawrence, Kansas.—Rain on the 25th and 26th of December, and six inches of snow on the 27th. A very little snow, also, on the 2d and 4th of January. No rain or snow again till the 28th, when there was a violent thunder-storm.

Fort Riley, Kansas.—Rain on the 24th and 25th December, and two inches of snow on the 26th and 27th. No snow or rain after this till the last day of January. High wind from the northwest on the 30th of December, and strong gale on the 31st.

Fontenelle, Nebraska.—December 31 is the coldest and most disagreeable day experienced in this Territory by the oldest settlers. Ground frozen eight inches deep. Two inches of snow on the 26th and 27th December.

Richland, Nebraska.—December 31. High wind from the northwest the most of last night, and a gale all this day. A thin fine snow or frost falling all night and day. Two inches of snow fell from the 24th to the 27th; none again sufficient to measure till the 4th of January, when an inch fell.

Bellevue, Nebraska.—In common with other parts of the country, we have felt the cold during the close of the last year and the beginning of this, the thermometer being for eleven mornings below zero. The last day of December was unusually cold, the thermometer sinking most of the day near two degrees an hour till dark. It had then fallen to -20° , at which it remained till near midnight; but we seemed to have been only on the edge of the snow-storm, as the snow in the air seemed to be from drift. An inch and a

half of snow is recorded on the 27th of December, an inch on the 2d of January, and an inch on the 4th; no rain or snow afterwards till the 29th.

Weyauwega, Wisconsin.—Three inches of snow on the 26th December, ten inches on the 27th and 28th, and two inches on the 31st.

Embarras, Wisconsin.—No register received for December. In January there was no rain or snow till the 12th.

Geneva, Wisconsin.—January 1, snow-drifts are from four to twelve feet high; roads running north and south are impassable. Large numbers of quails are found frozen in the snow.

Odanah, Wisconsin.—December 28, eight inches of snow. Snow squalls on the 30th and 31st. No snow in January till the 12th.

Beloit, Wisconsin.—The 1st day of January (mean temperature -25°) was the coldest day on this record for fourteen years, and the first week was five degrees colder than any week during that time, but the amount of snow was not so great as it has been. It was drifted terribly, and blocked the railroad trains for several days. I saw some drifts in a railroad cut east of here fourteen feet high.

Algona, Iowa.—On the 30th December, at 9 p. m., the wind began to drift the snow, which had fallen to the depth of five and a half inches on the 26th and 27th, and continued to increase all night, and by daylight of the 31st it was blowing a hurricane, which continued all day and till New Year's morn with the same violence apparently. At no time in the whole day could a house be seen at six rods' distance. The extreme cold in the face of the wind was, at 7 a. m., -15° ; at 10 a. m., -17° ; at 2 p. m., -20° ; at 6 p. m., -24° ; at 9 p. m., -26° . In some places there is no snow; at others it is ten feet deep, according to location, and considerable damage has been done by blowing down hay and straw stacks and timber. The early part of January was clear and no snow.

Independence, Iowa.—Twelve inches of snow from the 26th to the 28th December. No snow after the 28th till the 4th of January. Very light breeze from the northwest on the 29th and 30th December, and high wind from the same quarter on the 31st.

Mount Pleasant, Iowa.—Thursday, December 31, has been the most stormy and dismal day that I have ever known in this latitude. The wind blew a gale all day from the northwest, and the driving snow rendered the air dark, and made it almost impossible to go about out of doors. More stock died on this night in Iowa than was ever before known in any month of time; cattle, sheep, and hogs were often buried in snow-banks, where they perished by being smothered, &c. One man, in this county, lost fourteen head of cattle.

Muscatine, Iowa.—December 31, the most severe day of the winter so far; a most powerful northwester with snow-squalls and the air full of snow; thermometer below zero all day. The storm began in the evening of December 30; some flying clouds appearing and the cold wind beginning to rise at 10 p. m.; snow-squalls began in the night and continued all day the 31st. On the 5th of January the mail got through from the east the first time for six days; many cattle have frozen because they had not good shelter. January 2.—To-day has been a very severe one; thermometer -26° in the morning, and the average of the day $-14\frac{1}{3}^{\circ}$; not windy, and the snow appears to be done drifting. Yesterday and the day before were the severest which have been seen here for ten years. Drifting snow has completely blocked the railroads and country roads. The snow is about eighteen inches deep in the woods, most of it damp, frozen hard, so it will drift no more. January 8.—The past week has been about as cold as any I ever experienced; thermometer averaging -10° for eight days in succession. About one hundred head of cattle and many hogs froze to death in this county on the

night of December 31; but they were not properly sheltered. Sheep crowded into sheds, and the snow drifting upon them, they piled up, and some smothered, and others froze — *Foster*.

Muscatine, Iowa.—Last night (December 31) was, I think, the worst night I ever saw; thermometer from 20° to 22° below zero, and the wind blowing a gale.—*Walton*.

Prospect Hill, Floyd County, Iowa.—The *steadiness* of cold from the eve of December 30 to the morning of the 10th of January has not been equalled in seven years and two months, the period my register covers. There was no visible increase of snow here, in the woods, on the 31st of December; still, on the prairie, the position of the sun was not apparent, except faintly, at 9 a. m., on account of blowing snow.—*James Coley*.

Fort Madison, Iowa.—The last day of 1863 was the most severe storm we have had here since this county was settled, and the year 1864 was ushered in by said storm. The night before New Year's day was most particularly severe, with high wind from the northwest and drifting snow; some stock was frozen to death, and a number of chickens. Nine and a quarter inches of snow fell on the 27th of December; none fell again until the 2d of January, when there was half an inch, and three and a half inches fell on the 4th.

Iowa City, Iowa.—On the last day of the year (mean temperature -21°) commenced the most violent snow storm known in this region of country; snowing all day and night, and wind blowing violently all the time.

Pleasant Plain, Iowa.—December 31, a strong gale blew from the northwest all day and night, drifting the snow (six inches of which fell on the 27th and 28th) in such a manner as to fill roads (particularly north and south roads) so full as to entirely stop them, compelling everybody to take to the fields; all communication was stopped for several days. The first snow after the 28th of December was on the 4th of January, when one inch fell.

Iowa Falls, Iowa.—On the 30th of December, the sun rose bright and clear; sun set behind clouds slightly tinged with red; at 7 p. m. a snow-storm commenced, which continued all night and all next day, the wind blowing a hurricane from the northwest; the snow as fine as flour, and so dense the most of the time that I could not see two rods. This is the hardest storm we have had here for several years. December 31, 9 p. m., the storm still continues as severe as ever. January 1, commenced to abate about four o'clock this morning; at 7 a. m. it is down to a fresh breeze, with the mercury at 24° below zero. The sun rose bright and clear; all the after part of the day there were mock suns and a bow above the sun with pale colors.

Lyons, Iowa.—December 31, commenced snowing at 5 a. m., with a northwest wind, and thermometer -4° ; at 7 p. m. thermometer -4° ; at 12 p. m. -20° ; wind still blowing a gale. It is the coldest day, to be out, I ever experienced; have often seen a Canadian winter day of lower degree, but seldom with such a wind. It is impossible to go into the country on the prairie on account of drifts and cold; continued snowing until 10 p. m.; the wind has so scattered it that the depth can only be guessed—supposed to be about six inches. January 1.—This is the coldest day there has been here for seven years; solar halo at 9 a. m., with parhelia north and south.

Saint Paul, Minnesota.—Snowed from $8\frac{1}{2}$ a. m. on December 23 to 8 a. m. December 24; from 2 p. m. 25th to 9 a. m. 26th, and from 2 p. m. 27th to 5 p. m. 28th; no snow or rain afterwards until the 19th of January. The strongest wind was northwest on the 31st of December.

Forest City, Minnesota.—No snow from the 25th of December until the 11th of January. The cold during the first ten days of January and the

last day of December was the longest cold spell ever known here, and it was accompanied with a steady wind from the west, which is very unusual, as on occasions of extremely low temperature it is usually a dead calm; about one foot of snow was on the ground.

Tamarack, Minnesota.—No snow from Christmas until after the middle of January.

Montgomery, Colorado.—Snow on the 23d, 25th, 28th, and 31st December, amounting to six and three-tenths inches. Violent gale from the west on the 31st. The temperature of the last three days of the month was as follows: December 29, 7 a. m. 0° , 2 p. m. 20° , 9 p. m. -5° ; December 30, 7 a. m. -10° , 2 p. m. 10° , 9 p. m. -5° ; December 31, 7 a. m. -5° , 2 p. m. 0° , 9 p. m. -1° . One inch of snow fell on the 1st of January, and ten inches on the 3d and 4th.

Fort Laramie, Idaho.—December 28 and 29, slight snow-storm; no snow on the 30th or 31st. January 1, slight snow-storm; January 2, heavy snow-storm, drifting; January 3, very heavy snow-storm. Observations of temperature were made hourly during the night of December 31, and gave the following results:

6 p. m., Dec. 31.... -20°	10 p. m., Dec. 31... -25°	2 a. m., Jan. 1..... -20°	6 a. m., Jan. 1..... -12°
7 p. m., Dec. 31.... -21°	11 p. m., Dec. 31... -25°	3 a. m., Jan. 1..... -20°	7 a. m., Jan. 1..... -12°
8 p. m., Dec. 31.... -22°	12 p. m., Dec. 31... -29°	4 a. m., Jan. 1..... -19°	8 a. m., Jan. 1..... -10°
9 p. m., Dec. 31.... -24°	1 a. m., Jan. 1..... -29°	5 a. m., Jan. 1..... -18°	9 a. m., Jan. 1..... -6°

On the 5th, 6th, and 7th of January the temperature was still lower.

Fort Laramie, Idaho.—The weather has been so intensely cold, and the snow so deep, that we have not been able to keep open our communication with the different detachments posted in the mountains. In endeavoring to do so, and in furnishing the necessary wood, stores, &c, and taking care of the stock, probably one hundred men of my command have been frost-bitten. Two or three may lose their feet, but others will recover without permanent injury.—*Col. W. O. Collins, January 15.*

Texas.—At DeCrow's Point, Matagorda bay, the cold was intense on the 2d day of January. Ice formed there an inch thick in the tents of the soldiers of the federal army.—*Register of Dr. N. E. Ballou, Sandwich, Ill.*

Auburn, Oregon.—Snow on the 29th of December; clear and cold on the 30th and 31st. Temperature on the 30th, at 8 a. m. 8° , noon 18° , 6 p. m. 10° ; on the 31st, at 8 a. m. 14° , noon 26° , 6 p. m. 24° .

Neeah Bay, Washington Territory.—Rain or snow every day in December, except the 30th and 31st. Temperature on the 29th, at 7 a. m. 31° , 2 p. m. 40° , 9 p. m. 32° ; on the 30th, at 7 a. m. 34° , 2 p. m. 40° , 9 p. m. 36° ; on the 31st 7 a. m. 36° , 2 p. m. 39° , 9 p. m. 37° . The 29th was the coldest day of the month, except the 14th and 15th. Wind on the 29th west, fresh; 30th southwest, gentle; 31st southeast, fresh.

Sacramento, California.—December, rain only on the 4th, 10th, and 20th in all, an inch and a half. No snow or high wind during the month.

Days on which snow or rain fell in the last week of December, 1863, and the first week of January, 1864. S, snow; R, rain.

Place.	December, 1863.							January, 1864.						
	25	26	27	28	29	30	31	1	2	3	4	5	6	7
NEW BRUNSWICK.														
St. John.....				S.	S.			S.				S.		
CANADA WEST.														
Michipicoton.....	S.				S.	S.	S.	S.	S.					
MAINE.														
Steuben.....				S.	S.			S.R.				S.		
Perry.....					S.			S.R.				S.		
Gardiner.....				S.	S.									
West Waterville.....				S.	S.			S.R.				S.		
Williamsburg.....					S.			S.R.				S.		
Lisbon.....			S.	S.	S.	S.		S.R.			S.	S.		
Cornishville.....				R.S.	S.			S.R.				S.		
NEW HAMPSHIRE.														
Claremont.....			S.	S.	S.							S.		
Littleton.....			S.	S.				R.S.				S.		
North Littleton.....			S.	S.				S.				S.		
Stratford.....				S.				R.S.				S.		
VERMONT.														
Brandon.....			S.	S.	S.			R.				S.		S.
Lunenburg.....			S.	S.	S.	S.		R.				S.	S.	
Craftsbury.....				S.	S.			R.		S.		S.	S.	
Burlington.....					S.							S.		
Rutland.....			S.	S.				R.				S.		
MASSACHUSETTS.														
New Bedford.....				R.	R.		S.	R.				S.		
Mendon.....							R.S.					S.		
Amherst.....				S.				R.S.				S.		
Williamstown.....				S.				R.				S.		
Baldwinsville.....			S.	S.				R.				S.		
Topsfield.....			S.	S.R.				R.				S.		
Sandwich.....			S.R.	S.R.			S.R.	R.				S.		
Westfield.....				S.				R.				S.		
RHODE ISLAND.														
Providence.....				S.R.			S.	R.S.				S.		
CONNECTICUT.														
Pomfret.....				S.	S.		S.	R.				S.		
New Haven.....			S.	S.R.			S.	R.				S.		
NEW YORK.														
New York.....			R.	R.	R.		S.R.	S.	R.		S.	S.		S.

Days on which snow or rain fell, &c.—Continued.

Place.	December, 1863.							January, 1864.						
	25	26	27	28	29	30	31	1	2	3	4	5	6	7
NEW YORK—Cont'd.														
Oswego.....			S.	R.	R.		S.	R.	R.		S.	S.	S.	
Auburn.....				R.			S.	R.				S.		
Gouverneur.....				S.	S.			R.S.		S.		S.		
Fredonia.....		R.	R.	R.	R.		R.	S.	S.			S.	S.	S.
Jamestown.....		R.	R.	R.			R.	S.			S.	S.		
Fishkill Landing.....				S.	S.		R.	R.				S.		
Clinton.....			S.	S.	R.									
Rochester.....		R.S.		R.			S.	S.	S.		S.	S.	S.	
Skaneateles.....				R.			S.	S.			S.	S.	S.	
Fort Ann.....			S.		S.							S.		
South Hartford.....		S.	S.	S.				R.				S.		
South Trenton.....			S.	S.										
Theresa.....				S.	S.			R.S.		S.		S.		
Flatbush.....			R.	R.			R.				S.	S.		
Wilson.....			S.	R.			R.	S.				S.		
Garrison's.....				S.			R.				S.	S.		
Oneida.....			S.	S.				S.			S.	S.		
NEW JERSEY.														
Passaic Valley.....				R.			R.							
Progress.....			R.	R.			R.	R.			S.	S.		S.
Mount Holly.....			R.	R.			R.	R.			S.	Sleet		S.
Newark.....			R.	R.			S.R.				S.	S.		S.
Haddonfield*.....								R.			S.	R.		S.
Burlington.....			R.	R.			R.				S.	S.		
PENNSYLVANIA.														
Oil City.....		R.	R.	R.			R.	S.				S.	S.	S.
Nazareth.....			R.	R.			S.R.				S.	S.		S.
Tioga.....			R.	R.			S.R.					S.		
Fleming.....			R.	R.			R.				S.	S.		S.
Philadelphia.....			R.	R.			S.R.	R.		S.		R.		S.
Cannonsburg.....		R.	R.	R.						S.	S.	S.		S.
Harrisburg.....			R.	R.			S.R.	R.			S.	S.		S.
Pittsburg.....		R.	R.	R.			R.							
Silver Spring.....			R.	R.			S.				S.	S.		S.
Connellsville*.....								R.			S.	R.		S.
Byberry.....			R.	R.				R.			S.	S.		S.
DELAWARE.														
Wilmington*.....								R.			S.	S.		S.
MARYLAND.														
Sykesville.....			R.	R.			R.	R.			S.			S.
Chestertown.....			R.	R.	R.		R.	R.			S.	S.		
Bladensburg*.....											S.			S.
DISTRICT COLUMBIA.														
Washington.....			R.	R.			R.				S.			S.

* No register for December.

Days on which snow or rain fell, &c.—Continued.

Place.	December, 1863.							January, 1864.						
	25	26	27	28	29	30	31	1	2	3	4	5	6	7
SOUTH CAROLINA.														
Beaufort			R.							R.		R.	R.	R.
FLORIDA.														
Key West			R.					R.						
KENTUCKY.														
Louisville		R.	R.	R.			R.	S.		S.	S.	S.		S.
OHIO.														
College Hill		R.	R.				R.			S.	S.		S.	S.
New Lisbon		R.	R.	R.			R.			S.	S.	S.		
Welshfield		R.	R.	R.			R.	R.			S.	S.		
Austinburg		R.	R.	R.			R.	S.	S.		S.	S.	S.	
Westerville							R.				S.	S.		S.
Hillsborough		R.	R.	R.			R.S.					S.		S.
Portsmouth		R.	R.	R.			R.	S.		S.	S.	S.		S.
Bowling Green†		R.	R.	R.			R.							
Cleveland†		R.	R.	R.										
East Fairfield			R.	R.	R.		R.	S.	S.	S.	S.	S.		
Urbana		R.	R.	R.			R.S.		S.	S.	S.	S.		S.
Kingston		R.	R.	R.			R.			S.		S.		S.
Kelley's Island			R.	R.	R.		R.					S.		
Cincinnati			R.	R.	R.					S.	S.			S.
Eaton							R.S.				S.			
Cardington†		R.	R.	R.			R.S.							
MICHIGAN.														
Ypsilanti†		R.	R.	R.			R.S.					S.		
Lansing		R.	R.	R.S.	S.		S.				S.	S.		
Clifton						S.	S.			S.		S.		S.
Monroe		R.		R.			R.	R.			S.	S.	S.	
Holland*								S.	S.	S.		S.	S.	S.
Oshtamo*											S.	S.	S.	
INDIANA.														
New Albany		R.	R.	R.			R.S.			S.	S.			S.
Muncie		R.	R.	R.			R.S.	S.			S.	S.	S.	
Spiceland		R.	R.	R.S.			R.S.		S.		S.	S.		
Newcastle		R.	R.	R.			R.	S.			S.	S.	S.	
South Bend		R.	R.				S.				S.	S.		
Rockville		R.		R.			R.S.		S.		S.	S.		S.
New Harmony		R.	R.			R.	R.S.				S.	S.		S.
ILLINOIS.														
Waverly			R.			S.	S.				S.			
Ottawa		S.				S.		S.			S.			
Tiskilwa		R.	R.	R.S.			S.				S.			
Upper Alton			R.			R.	S.				S.			
Pekin	R.	R.	R.	S.		S.	S.		S.	S.	S.	S.		
Galesburg	R.		R.	R.S.			S.	S.			S.			

* No register for December.

† No register for January.

Days on which snow or rain fell, &c.—Continued.

Place.	December, 1863.							January, 1864.						
	25	26	27	28	29	30	31	1	2	3	4	5	6	7
ILLINOIS—Cont'd.														
Peoria		R.	R.	S.			S.			S.	S.			
Winnebago		R.S.	S.R.	R.S.			S.			S.	S.			
Augusta		R.	R.	R.S.		S.	S.		S.	S.	S.			
Sandwich		R.		R.	S.	S.	S.	S.		S.	S.			
Manchester		R.	R.	R.		S.	S.	S.		S.	S.			
WISCONSIN.														
Manitowoc		S.	S.R.	S.R.			S.					S.		
Milwaukee		S.	S.	S.			S.				S.			
Beloit			R.					S.						
Weyauwega†		S.	S.	S.			S.							
Madison			S.	S.						S.	S.			
Green Bay*												S.		
Odanah		S.		S.		S.	S.							
Embarrass*														
Geneva		S.		S.			S.				S.			
MISSOURI.														
Harrisonville	R.		S.						S.		S.			
Canton	R.	R.	R.S.			S.	S.		S.	S.	S.			
Laborville		R.	R.				S.	S.	S.		S.			
St. Louis		R.	R.		R.	R.S.	S.							
Athens	S.	R.	R.	S.			S.	S.	S.		S.			S.
IOWA.														
Muscatine	R.		S.	S.			S.				S.			
Iowa Falls	R.	S.	S.	S.			S.				S.			
Lyons		R.	S.	S.			S.				S.			
Pleasant Plain	R.	R.	S.	S.							S.			
Algona	R.	S.	S.											
Independence	S.	S.	S.	S.							S.			
Iowa City	R.	R.	S.	S.							S.			
Fort Madison		R.	S.					S.			S.			
Dubuque		S.	S.	S.			S.				S.			
Mount Pleasant		R.	R.	S.		S.					S.			
Waterloo*											S.			
MINNESOTA.														
St. Paul	S.	S.	S.	S.										
Forest City	S.													
Tamarack	S.	S.												
KANSAS.														
Lawrence	R.	R.	S.						S.		S.			
Fort Riley	R.	S.	S.								S.			
Manhattan	R.S.	S.	S.								S.			
NEBRASKA.														
Fontenelle†	R.	S.	S.											
Bellevue		R.	S.						S.		S.			
Elkhorn City		S.	S.	S.					S.		S.			

* No register for December.

† No snow or rain till the 12th.

‡ No snow or rain till the middle of the month or later.

Days on which snow or rain fell, &c.—Continued.

Place.	December, 1863.							January, 1864.						
	25	26	27	28	29	30	31	1	2	3	4	5	6	7
IDAHO TERRITORY.														
Fort Laramie.....				S.	S.			S.	S.	S.				S.
COLORADO TERRIT'Y.														
Montgomery.....	S.			S.			S.	S.		S.	S.			S.
WASH'N TERRITORY.														
Neeah Bay.....	R.	R.	R.	R.	R.			R.	R.	R.				S.
OREGON.														
Auburn.....		S.	S.		S.			R.		S.				S.
CALIFORNIA.														
Sacramento*.....														
MEXICO.														
Vera Cruz.....								R.					R.	R.
Mirador.....				R.			R.	R.					R.	R.
Fronterat.....				R.			R.							
NEW GRANADA.														
Aspinwall.....	R.	R.	R.		R.	R.							R.	R.

* No rain in December after the 20th. Register for January not received.

† No register for January.

Duration of cold in December, 1863, and January, 1864.

The following table shows on what days of the month in December and January the temperature was at zero or lower at the various stations; also, the number of days in the same month on which it was as low or lower than the freezing point:

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
NEW BRUNSWICK.				
St. John.....	None.....	28	7, 8.....	28
MAINE.				
West Waterville.....	21, 22.....	29	3, 5, 7, 8.....	30
Williamsburg.....	11, 21, 23.....	29	2, 3, 4, 5, 7, 8.....	31
Lisbon.....	21, 22, 23.....	29	7, 8, 9, 10, 11, 17...	29

Duration of cold in December, 1863, and January, 1864—Continued.

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
MAINE—Continued.				
Cornishville	21, 22	29	2, 3, 7	29
Perry	11, 21	28	5, 7, 8	29
Steuben	7, 11, 21	28	5, 7, 8, 9	28
Gardiner	21, 22, 23	30		
NEW HAMPSHIRE.				
Claremont	10, 11	23	2, 7, 8	28
Littleton	10, 11, 22, 23, 25	29	2, 3, 4, 5, 7, 8, 9, 22	28
North Littleton	6, 7, 8, 10, 11, 16, 17, 20, 21, 22, 23, 25, 26	31	2, 3, 4, 5, 7, 8, 16, 17, 21, 22	31
Stratford	7, 10, 11, 21, 22, 23, 25	29	2, 3, 4, 5, 7, 8	29
VERMONT.				
Brandon	None	27	7, 8	28
Lunenburg	10, 11	28	2, 3, 4, 6, 7, 8, 14, 15	29
Craftsbury	10, 11, 21, 22, 25	30	2, 3, 4, 7, 8	30
Burlington	10, 11, 25	28	7	29
Rutland	None	26	7	26
Calais			2, 3, 4, 5, 7, 8	30
MASSACHUSETTS.				
New Bedford	None	20	None	24
Mendon	None	26	7	27
Amherst	None	27	7	28
Williamstown	None	28	2, 7	27
Baldwinsville	21, 22, 23, 25, 26	28	2, 3, 7, 10, 14, 17	29
Topsheld	None	25	None	26
Sandwich	None	21	None	24
Westfield	None	28	7, 11	28
RHODE ISLAND.				
Providence	None	26	None	27
CONNECTICUT.				
Pomfret	None	26	2	27
New Haven	None	24	11	26
NEW YORK.				
New York, (175, 2d avenue.)	None	17		
New York, (Deaf and Dumb Institute.)	None	15	None	18
Oswego	None	24	2, 7	27
Auburn	None	25	None	27
Gouverneur	10, 21, 23, 24, 25	26	2, 4, 5, 6, 7, 20, 21	30
Fredonia	None	23	1, 2	22
Seneca Falls	None	24	2	21
Jamestown	None	26	1, 2, 8, 9, 21	25
Fishkill Landing	None	23	None	24
Clinton	22	25		

Duration of cold in December, 1863, and January, 1864—Continued.

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
NEW YORK—Cont'd.				
Garrison's.....	None.....	23	None.....	26
Rochester, (Dewey).....	None.....	25	1, 2.....	26
Rochester, (Mathews).....	None.....	26	1, 2.....	25
Skaneateles.....	23.....	26	2, 7.....	28
Fort Ann.....	25.....	21	3.....	15
South Hartford.....	10.....	27	2, 7, 8.....	26
South Trenton.....	18, 25.....	(a)	.....	.....
Theresa.....	10, 23, 24, 25.....	27	2, 4, 7, 20, 21.....	28
Buffalo*.....	None.....	25	.....	.....
Sackett's Harbor*.....	None.....	25	.....	.....
Fort Niagara*.....	None.....	26	.....	.....
Charlotte*.....	None.....	25	.....	.....
White Plains.....	.....	.....	None.....	22
Schenectady.....	.....	.....	2, 7, 8, 9.....	28
Wilson.....	None.....	27	1, 2.....	27
Oneida.....	22, 23, 25.....	27	None.....	26
Flatbush.....	None.....	24	None.....	24
NEW JERSEY.				
Passaic Valley.....	None.....	26	.....	.....
Progress.....	None.....	22	None.....	25
Mount Holly.....	None.....	20	None.....	18
Newark.....	None.....	25	None.....	26
Haddonfield.....	.....	.....	None.....	23
Burlington.....	None.....	27	None.....	28
PENNSYLVANIA.				
Oil City.....	None.....	21	1, 2.....	27
Nazareth.....	None.....	24	2.....	23
Tioga.....	None.....	24	1, 2, 8, 9, 10, 11.....	26
Fleming.....	None.....	23	2.....	28
Philadelphia.....	None.....	17	None.....	18
Canonsburg.....	None.....	21	1, 2, 6, 7, 9.....	24
Harrisburg, (Heiseley).....	None.....	18	None.....	22
Harrisburg, (Hickok).....	None.....	17	None.....	19
Pittsburg.....	None.....	21	.....	.....
Silver Spring.....	None.....	22	12.....	23
Connellsville.....	.....	.....	2, 6, 7, 8, 9.....	20
Byberry.....	None.....	21	.....	.....
DELAWARE.				
Wilmington.....	.....	.....	None.....	22
MARYLAND.				
St. Mary's city.....	None.....	14b	None.....	c12
Sykesville.....	None.....	27	None.....	22
Chestertown.....	None.....	17	None.....	19
Bladensburg.....	.....	.....	None.....	19

* Stations of the Lake Survey under the direction of Colonel Graham.

a Only nine days observed.

b Last four days omitted.

c No observation first three days.

Duration of cold in December, 1863, and January, 1864—Continued.

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
DISTRICT OF COLUMBIA.				
Washington	None	16	None	19
SOUTH CAROLINA.				
Beaufort	None	6	None	6
FLORIDA.				
Key West	None	None ..	None	None ...
KENTUCKY.				
Louisville	None	18	1, 2, 8, 9	20
OHIO.				
College Hill, (Wilson)	None	17	1, 2, 3, 4, 6, 8, 9	21
College Hill, (Hammit)	None	19	1, 2, 6, 8, 9	22
New Lisbon	None	22	1, 2, 6, 7, 9	25
Rockport	None	21	.....	.....
Welshfield	None	23	1, 2, 9	23
Austinburg	24	23	1, 2, 9	25
Westerville	None	21	1, 2, 6, 7, 9, 10	22
Hillsborough	None	16	1, 2, 6, 9	22
Portsmouth	None	15	2	20
Bowling Green	None	18	.....	.....
Cleveland	None	17	.....	.....
East Fairfield	None	21	1, 2, 6, 9	22
Urbana	None	20	1, 2, 5, 6, 7, 8, 9, 10	23
Kingston	None	19	1, 5, 6, 7, 9	22
Kelley's Island	None	20	1, 2, 6, 9	24
Cincinnati	None	17	1, 2, 6, 9	22
Eaton	None	21	1, 2, 6, 7, 9	24
Cleveland *	None	22	.....	.....
MICHIGAN.				
Lansing	None	24	1, 2, 3, 9	24
Clifton	31	31	1, 2, 3	30
Monroe	None	21	1, 2, 6, 9	25
Detroit™	None	23	.....	.....
Tawas City*	None	26	.....	.....
Ontonagon*	None	31	.....	.....
Monroe	None	22	.....	.....
Sugar Island *	14, 16, 19, 20, 23	30	.....	.....
Holland	None .....	.....	1, 2	29
INDIANA.				
New Albany	None	19	1, 2, 8, 9	22
Muncie	20	19	1, 2, 5, 6, 7, 8, 9	21
Spiceland	None	21	1, 2, 5, 6, 7, 8, 9	22
Newcastle	None	20	1, 2, 5, 6, 7, 8, 9	22
South Bend	20	25	1, 2, 3, 5, 6, 7, 8, 9, 11	21
Rockville	19, 20, 31	20	1, 2, 5, 6, 7, 8, 9	23
New Harmony	None	13	1, 2, 6, 8, 9	20
Indianapolis .....	.....	.....	1, 2, 6, 7, 8, 9	23

* Station of lake survey under direction of Colonel Graham.

† Observations interrupted.

Duration of cold in December, 1863, and January, 1864—Continued.

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
ILLINOIS.				
Waverly	19, 31	23	1, 2, 4, 5, 6, 7, 8, 9, 11..	24
Ottawa	19, 31	23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	27
Tiskilwa	19, 20, 31	26	1, 2, 3, 4, 5, 6, 7, 8, 9, 11..	27
Upper Alton	19, 31	19	1, 2, 4, 5, 6, 8, 9	22
Pekin	19, 31	22	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	24
Galesburg	18, 19, 31	23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	25
Peoria	19, 31	21	1, 2, 5, 6, 7, 8, 9, 11	24
Winnebago	19, 30, 31	26	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	29
Augusta	18, 19, 31	22	1, 2, 3, 4, 5, 6, 7, 8, 9, 11..	23
Sandwich	19, 31	22	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	23
Manchester	19, 31	23	1, 2, 5, 6, 7, 8, 9, 11	24
WISCONSIN.				
Manitowoc	20	22	1, 2, 3, 4, 5, 6, 7, 8, 9	26
Milwaukee	20, 31	25	1, 2, 3, 4, 5, 6, 7, 8, 9, 11..	27
Beloit	19, 31	25	1, 2, 3, 4, 5, 6, 7, 8, 9, 11..	30
Weyauwega	15, 20, 31	30		
Madison	19, 31	(a)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	29
Superior*	5, 14, 15, 18, 19, 31	31		
Green Bay			1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	29
Odanah	19, 31	29	1, 2, 3, 4, 5, 6, 7, 8, 9	30
Embarrass			1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	30
Geneva	19, 31	26	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	27
MISSOURI.				
Harrisonville	14, 19, 31	22	1, 4, 5, 6, 7, 8, 9	25
Canton	18, 19, 30, 31	24	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	27
Laborville	31	19	1, 2, 5, 6, 8, 9, 11	23
St. Louis			1, 2, 5, 6, 8, 9, 11	23
Athens	18, 19	21	1, 2, 4, 5, 6, 7, 8, 9	26
IOWA.				
Iowa Falls	18, 19, 30, 31	30	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	31
Lyons	18, 19, 31	27	1, 2, 3, 4, 5, 6, 7, 8, 9, 11..	28
Pleasant Plain	18, 19, 31	23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18.	25
Algona	15, 18, 19, 30, 31	31	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	31
Independence	15, 18, 19, 30, 31	28	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18.	31

* Stations of lake survey under direction of Colonel Graham.

a First eight days omitted.

Duration of cold in December, 1863, and January, 1864—Continued.

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
IOWA—Continued.				
Muscatine, (Walton)	18, 19, 31.....	23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18, 19.	28
Muscatine, (Foster).....	18, 19, 30, 31.....	29	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 19.	30
Iowa City.....	18, 19, 30, 31.....	23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18.	28
Fort Madison.....	19, 31.....	22	1, 2, 3, 4, 5, 6, 7, 8, 9, 11.	25
Dubuque.....	19, 30, 31.....	27	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18, 19.	31
Mount Pleasant.....	18, 19, 31.....	25	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	26
Waterloo.....	.....	.....	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18, 19.	31
MINNESOTA.				
St. Paul.....	15, 18, 19, 29, 30, 31..	30	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 18.	30
Forest City.....	15, 18, 19, 30, 31.....	30	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15.	30
Tamarack.....	15, 18, 19, 30, 31.....	29	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15.	a 29
KANSAS.				
Lawrence.....	14, 19, 31.....	23	1, 3, 4, 5, 6, 7, 8.....	26
Fort Riley.....	19, 31.....	24	1, 4, 5, 6, 7, 8, 9, 10...	24
Manhattan.....	19, 30, 31.....	26	1, 2, 4, 5, 6, 7, 8, 9, 10, 11.	24
NEBRASKA TERRITORY.				
Fontenelle.....	13, 14, 15, 17, 18, 19, 30, 31.	31	.....	.....
Bellevue.....	18, 19, 31.....	25	1, 2, 3, 4, 5, 6, 7, 8, 9, 10.	27
Elkhorn City.....	13, 14, 18, 19, 30, 31..	29	1, 2, 3, 4, 5, 6, 7, 8, 9, 10.	27
COLORADO TERRITORY.				
Montgomery.....	16, 26, 29, 30, 31.....	31	5, 7, 30.....	31
IDAHO TERRITORY.				
Fort Laramie.....	14, 27, 30, 31.....	27	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 17, 30.	24
OREGON.				
Auburn.....	None.....	29	4, 5, 6.....	31
CALIFORNIA.				
Sacramento.....	None.....	3	.....	.....

a Observations not complete.

Duration of cold in December, 1863, and January, 1864—Continued.

Place.	December, 1863.		January, 1864.	
	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.	Days of the month on which the thermometer was at zero or lower.	No. of days at 32° or lower.
MEXICO.				
Mirador.....	None.....	None ..	None	None ..
Frontera.....	None	None ..	None	None ..
NEW GRANADA.				
Aspinwall	None	None ..	None	None ..
WASHINGTON TERRITORY.				
Neeah Bay*	None	4	None	10

* Neeah Bay, December, maximum, 52°; minimum, 30°; mean, 41.7°.

TEMPERATURE AND WIND ON THE FIRST DAY OF JANUARY, 1864.

The following table gives the temperature at 7 a. m., 2 p. m., and 9 p. m. of the first day of January; also, at 7 a. m. on the second, and the direction and force of the wind at the same hours. The letters indicating the direction show the point of the compass *from* which the wind blew. The force of the wind is given by estimation by nearly all the observers, very few having any instrument for measuring it, and the figures indicating the force are according to the following scale, which is printed on all the Smithsonian Meteorological registers:

1 signifies a very light breeze, blowing at the rate of 2 miles an hour.				
2 signifies a gentle breeze,	"	"	4	"
3 signifies a fresh breeze,	"	"	12	"
4 signifies a strong wind,	"	"	25	"
5 signifies a high wind,	"	"	35	"
6 signifies a gale,	"	"	45	"
7 signifies a strong gale,	"	"	60	"
8 signifies a violent gale,	"	"	75	"
9 signifies a hurricane,	"	"	90	"
10 signifies a most violent hurricane,	"	"	100	"

The fall of temperature is distinctly marked on the sea-coast of Florida and South Carolina.

At St. John, New Brunswick, the temperature continued to fall on the 2d and till the morning of the 3d. The readings of the thermometer on the 2d were, 6 a. m., 18°; 2 p. m., 10°; 10 p. m., 5°; 3d, 6 a. m., 4°. The observations are made at 6 a. m. instead of 7, and 10 p. m. instead of 9.

At St. John's, Newfoundland, the temperature was 12° at 7 a. m. of the 3d.

Weather on New Year's Day, 1864.

Place.	Temperature.				Direction and force of wind.			
	7 a. m.	2 p. m.	9 p. m.	7 a. m.*	7 a. m.	2 p. m.	9 p. m.	7 a. m.*
NEWFOUNDLAND.								
St. John's	20	22	.....	24	.....	.....	.....	.....
NEW BRUNSWICK.								
St. John	22	36	44 •	18	NW. 4...	SE. 5...	SW. 6...	W. 6....
MAINE.								
West Waterville	31	42	38	6	E. 2....	S. 2....	SW. 3...	SW. 3...
Williamsburg	22	36	40	2	NE 2....	E. 3....	E. 1....	NW. 4...
Lisbon	35	40	37	5	SE. 3....	E. 2....	W. 5....	W. 5....
Cornishville	32	35	30	-2	SE. 1....	NW. 1...	NW. 4...	N. 3....
Perry	32	42	45	8	SE. 6....	SE. 6....	SW. 5....	NW. 6....
Steuben	33	44	42	9	SE. 5....	SE. 4....	SE.	NW. 4....
NEW HAMPSHIRE.								
Claremont	36	38	22	0	SE. 1....	SE. 2....	NW. 4....	W. 2....
Littleton	36	40	22	0	S. 3....	S. 2....	NW. 2....	.....
North Littleton	32	35	14	-9	S. 4....	S. 1....	NW. 3....	SW. 3....
Stratford	29	38	28	-2	E. 5½...	E. 4....	NW. 4½...	SW. 3½...
VERMONT.								
Brandon	40	40	16	2	SE. 6....	W. 2....	W. 3....	SW. 3....
Lunenburg	28	34	31	8	S. 3....	S. 6....	SW. 6....	W. 2....
Craftsbury	35	34	9	-4	S. 3....	SW. 2....	NW. 4....	W. 4....
Burlington	37	35	12	1	SW. 3....	NW. 1....	NW. 4....	NW. 3....
Rutland	38	42	.....	6	SW. 4....	NW.	NW. 5....	NW. 3....
Calais	27	34	14	-3	.....	.....	.....	.....
MASSACHUSETTS.								
New Bedford	43	50	29	8	SE. 1....	SSW. 3...	W. SW. 6...	W. 5....
Mendon	35	46	26	4	SE. 1....	E. 2....	NW. 6....	NW. 5....
Amherst	38	38½	19½	1	E. 2....	W. 2....	NW. 5....	NW. 5....
Williamstown	37	37	11½	-2	E. 2....	N. 1....	NW. 4....	NW. 3....
Baldwinsville	34	41	20	-5	E. 4....	SW. 3....	SW. 5....	W. 4....
Topsfield	40	45	27	9	E. 2....	S. 1....	W. 6....	W. 7....
Sandwich	46	53½	32	8	SE. 4....	S. 4....	SW. 4....	SW. 3....
Westfield	35	37	22	1	SE.	SE.	W.	SW.
RHODE ISLAND.								
Providence	39	47	23	6	SE. 2....	S. 1....	W. 3....	NW. 2....
CONNECTICUT.								
Pomfret	25	45	22	0	NE. 1....	S. 1....	NW. 4....	W. 3....
New Haven	37	41	22	5	SW. 1....	SW. 1....	SW. 3....	W. 2....
NEW YORK.								
New York, (Deaf and Dumb Institute.)	47	45.2	22	12	SE. 1....	SW. 3....	W. 5....	W. 6....
Oswego	33	18	2	-6	W. 8....	W. 8....	W. 8....	W. 5....
Auburn	36	26	8	0.6 S	.....	NW.	W.	SW.
Gouverneur	33	25	2	-3	SW. 5....	SW. 4....	NW. 5....	W. 4....

* January 2.

Weather on New Year's Day, 1864—Continued.

Place.	Temperature.				Direction and force of wind.			
	7 a. m.	2 p. m.	9 p. m.	7 a. m. *	7 a. m.	2 p. m.	9 p. m.	7 a. m. *
NEW YORK—Continued.								
Fredonia	22	9	— 4½	— 7	W. 4...	W. 5...	SW. 5...	SW. 4...
Seneca Falls	32	25	4	— 2				
Jamestown	16	2	— 12	— 14	SW. 5...	SW. 5...	SW. 5...	NW. 4...
Fishkill Landing	44	44	24	6	NW. 2...	W. 4...	NW. 6...	W. 5...
Rochester, (Dewey)	32	16	— 1	— 4	SW			
Rochester, (Mathews)	31	17	— 1	— 4	W. 7...	W. 7...	W. 6...	W. 6...
Skaneateles	41	24	1	— 5	S. 7...	W. 7...	W. 8...	SW. 7...
Fort Ann	40	44	41	0	SW. 3...	S. SW. 4...	S. 3...	SE. 2...
South Hartford	36	42	10	0	SW. 1...	SW. 2...	SW. 5...	SW. 5...
Theresa	39	26	12	— 2	W. 3½	SW. 4...	W. 5...	W. SW. 3½
White Plains	43	46	20	6				
Schenectady	37	34	8	— 2				
Wilson	28	10	— 4	— 5	SW. 7...	SW. 7...	SW. 6...	SW. 7...
Garrison's	40	39	15	2	SE. 1...	SW. 3...	SW. 4...	SW. 3...
Throg's Neck	44	43	16	6				
Oneida	38	24	8	2	SE. 3...	W. 3...	W. 5...	W. 5...
Flatbush	39.1	41.5	25.9	5.1	S. 1...	W. 3...	NE. 5...	W. 2...
NEW JERSEY.								
Progress	53	37	16	6½	S. 3...	W. 4...	W. 6...	W. 4...
Mount Holly	46	40	18	10	SW. 3...	NW. 6...	NW. 8...	NW. 4...
Haddonfield	50	35	18	8	S...	NW. 4...	NW...	SW...
Burlington	54	38	14	4	SW...	SW...	SW...	W...
PENNSYLVANIA.								
Oil City	21	5	— 4	— 7	SW. 4...	W. 4...	W. 3...	W. 3...
Nazareth	45	38	11	0	SW. 2...	NW. 5...	NW. 6...	NW. 5...
Tioga	42	24	0	— 8	SW. 5...	SW. 6...	W. 8...	W. 3...
Fleming	32	18	0	— 4	W. 5...	NW. 6...	NW. 6...	NW. 6...
Philadelphia	53½	38	16½	7½	S. 2...	W. 2...	NW. 3...	W. 3...
Cannonsburg	19	6	— 4	— 10	W. 5...	W. 5...	NW. 5...	W. 4...
Harrisburg, (Heisely)	39	29	13	8	E. 1...	NW. 2...	NW. 4...	NW. 2...
Harrisburg, (Hickok)	40	28	12	5	W. 1...	W. 3...	W. 5...	W. 3...
Silver Spring	45	29	13	5	NW. 1...	NW. 2...	NW. 3...	W. 3...
Connellsville	18		0	— 8	W. 3...	W. 3...	W. 3...	W. 3...
DELAWARE.								
Wilmington	50	43	15	5	S. 2...	NW. 3...	NW. 5...	NW. 3...
MARYLAND.								
Sykesville	42	28	19	2	W. 3...	NW. 5...	NW. 4...	W. 4...
Chestertown	46	33	14	8	NW. 2...	NW. 2...	NW. 3...	N. 2...
Bladensburg	48	35	14	7	NW...	NW...	NW...	W...
DISTRICT OF COLUMBIA.								
Washington	47	31	14	8	SW. 3...	NW. 5...	NW. 5...	NW. 2...
SOUTH CAROLINA.								
Beaufort	49	41	28	18	W. 3...	W. 4...	NW. 4...	NW. 2...
FLORIDA.								
Key West	76	73		56	SW. 1...	N. 5...		NE. 3...

* January 2.

Weather on New Year's Day, 1864—Continued.

Place.	Temperature.				Direction and force of wind.			
	7 a. m.	2 p. m.	9 p. m.	7 a. m.*	7 a. m.	2 p. m.	9 p. m.	7 a. m.*
KENTUCKY.								
Louisville	— 8	— 5	— 4	— 3	W. 5 ...	W. 4 ...	W. 3 ...	W. 2 ...
OHIO.								
College Hill, (Wilson) ..	—14	—10	—10	—10	W. 3 ...	W. 4 ...	W. 2 ...	W. 3 ...
College Hill, (Hammit) ..	—12	—11	—11	—11	W. 5 ...	W. 5 ...	W. 5 ...	W. 4 ...
New Lisbon	16	7	4	—10	SW. 3 ...	N. 4 ...	NW. 3 ...	SW. 3 ...
Welshfield	10	— 2	— 9	—13	SW. 5 ...	W. 6 ...	W. 6 ...	SW. 6 ...
Austinburg	13	— 2	— 9	—12	SW. 4 ...	SW. 4 ...	SW. 5 ...	SW. 4 ...
Westerville	— 3	— 4	—10	—10	SW. 5 ...	SW. 5 ...	W. 5 ...	W. 5 ...
Hillsborough	— 6	— 5	— 7	— 7	SW. 5 ...	SW. 4 ...	SW. 4 ...	SW. 4 ...
Portsmouth	8	4	1	0	SW. 4 ...	W. 6 ...	W. 4 ...	W. 3 ...
East Fairfield	17	2	— 5	— 8	SW. 5 ...	SW. 5 ...	SW. 4 ...	SW. 5 ...
Urbana	—11	— 9	—14	—10	W. 5 ...	W. 6 ...	W. 6 ...	W. 5 ...
Kingston	1	— 0.5	— 4	— 5	W. 7 ...	W. 6 ...	W. 4 ...	SW. 3 ...
Kelley's Island	2	— 8	—11	—10	W. 7 ...	W. 7 ...	W. 7 ...	SW. 6 ...
Cincinnati	—12	— 8	—10	— 5	W. 5 ...	W. 4 ...	W. 4 ...	W. 3 ...
Eaton	—15	—11	—12	—10	W. 5 ...	W. 5 ...	SW. 5 ...	W. 3 ...
MICHIGAN.								
Lansing	0	—11	—22	—12	SW. 7 ...	SW. 7 ...	SW. 6 ...	SW. 7 ...
Clifton	—14	—12	—15	—15				
Monroe	— 2	— 3	—10	— 8	SW. 4 ...	SW. 4 ...	W. 4 ...	SW. 3 ...
INDIANA.								
New Albany	—10	— 4	— 6	— 3	NW. 5 ...	NW. 4 ...	NW. 2 ...	W. 2 ...
Muncie	—20	—13	—15	—15	W. 7 ...	W. 3 ...	W. 4 ...	W. 3 ...
Spiceland	—19	—10	—14	—13	NW. 5 ...	SW. 4 ...	W. 3 ...	SW. 2 ...
New Castle	—19	—14	—15	—15	NW. 5 ...	NW. 4 ...	NW. 3 ...	SW. 2 ...
South Bend	—20	—17	—18	—18	W ...	W ...	W ...	W ...
Rockville	—22	—16	—14	—13	NW. 4 ...	SW. 3 ...	SW. 2 ...	SW. 2 ...
New Harmony	—15	— 6	— 5	— 3	W. 2 ...	W. 2 ...	W. 2 ...	W. 1 ...
Indianapolis	—20	—12	—14	—14				
Holland	— 3	— 8	— 9	— 6	NW. 4 ...	NW. 4 ...	W. 4 ...	W. 4 ...
ILLINOIS.								
Waverly	—24	—10	—18	— 8	NW. 3 ...	SW. 3 ...	SW. 2 ...	SW. 2 ...
Ottawa	—25	—10	—18	—22	W. 3 ...	NW. 6 ...	NW. 7 ...	NW. 5 ...
Tiskilwa	—24	—18	—18	—16	NW. 5 ...	NW. 4 ...	NW. 3 ...	W. 3 ...
Upper Alton	—21	— 8	—10	— 4	N. 3 ...	N. 5 ...	N. 5 ...	NW. 4 ...
Pekin	—20	—10	—14	—18	W. 5 ...	W. 5 ...	W. 2 ...	NW. 2 ...
Galesburg	—23	—15½	—14½	—18	W. 4 ...	W. 3 ...	W. 2 ...	W. 1 ...
Peoria	—20	— 9½	—11½	—19	W. 4 ...	W. 3 ...	W. 2 ...	W. 2 ...
Winnebago	—28	—21	—22	—25	W. 4 ...	W. 6 ...	W. 5 ...	W. 3 ...
Augusta	—26	—16	—16	—16	W. 4 ...	SW. 5 ...	SW. 3 ...	SW. 3 ...
Sandwich	—26	—19	—20	—22	N. 5 ...	W. 5 ...	SW. 4 ...	S. 2 ...
Manchester	—24	—10	— 6	— 6	W. 2 ...	W. 1 ...	W. 2 ...	SE. 1 ...
WISCONSIN.								
Manitowoc	—20	—19	—22	—26	NW. 6 ...	NW. 5 ...	W. 4 ...	NW. 4 ...
Beloit	—29	—23	—23	—23	NW. 3 ...	W. 4 ...	W. 3 ...	W. 2 ...
Milwaukee	—27	—23	—23	—25				
Madison	—29	—23	—26	—26	NW. 2 ...	NW. 3 ...	NW. 2 ...	W. 1 ...
Green Bay	—26	—23	—30	—30	W. SW. 3	W. SW. 3	W. SW. 3	W. SW. 3
Odanah	—24	—24	—24	—28	SW. 3 ...	SW. 4 ...	SW. 4 ...	SW. 4 ...
Embarrass	—35	—20	—30	—36	NW. 3 ...	W. 3 ...	W. 2 ...	W. 2 ...
Geneva	—30	—20	—24	—25	NW. 5 ...	NW. 5 ...	NW. 4 ...	W. 3 ...

* January 2.

Weather on New Year's Day, 1864—Continued.

Place.	Temperature.				Direction and force of wind.			
	7 a. m.	2 p. m.	9 p. m.	7 a. m.*	7 a. m.	2 p. m.	9 p. m.	7 a. m.*
MISSOURI.								
Harrisonville.....	—22	— 2	— 4	4	NW. 1..	W. 2..	SW. 2..	S. 1.....
Canton.....	—23	— 5	—17	—19	W. 2..	W. 2..	SW. 1..	.....
Laborville.....	—18	— 2	—16	—12	NW. 1..	NW. 1..	NW. 1..	NW. 1..
St. Louis.....	—22	— 4½	— 7	— 6	NW. 4..	W. 4..	SW. 3..	S. 2..
Atkins.....	—18	—12	—14	—12	NW. 4..	NW. 6..	NW. 4..	NW. 2..
IOWA.								
Iowa Falls.....	—24	—16	—21	—22	NW. 3..	NW. 4..	W. 5..	W. 3.....
Lyons.....	—24	—10	—16	—20	NW. 5..	NW. 5..	NW. 3..	NW. 3..
Pleasant Plain.....	—26	—10	—20	—20	NW. 4..	NW. 4..	SW. 2..	NW. 3..
Algona.....	—24	—18	—20	—24	NW. 3..	NW. 4..	W. 2..	W. 3.....
Independence.....	—24	—17	—24	—26	NW. 4..	NW. 4..	NW. 4..	N. 1.....
Muscatine, (Walton).....	—21	—14	—17	—26*	NW. 4..	W. 4..	W. 1..	W. 1.....
Muscatine, (Foster).....	—24	—17	—20	—26	NW. 5..	NW. 4..	W. 2..	W. 1.....
Iowa City.....	—26	—16	—21	—23	N. 3..	N. 3..	NW. 2..	SW. 1..
Fort Madison.....	—33	—12	—14	—18	NW. 4..	NW. 4..	W. 3..	W. 2.....
Dubuque.....	—29	—18	—21	—27	NW. 5..	NW. 5..	NW. 3..	W. 2.....
Mount Pleasant.....	—24	—10	—17	—20	W.....	W.....	W.....	SW.....
Waterloo.....	—30	—20	—26	—26	NW. 2..	NW. 1..	NW. 1..	W. 1.....
Prospect Hill.....	—25	—21	—23	—27	.....	.....	.....	.....
MINNESOTA.								
St. Paul.....	—35	—25	—28	—33	NW. 3..	W. 3..	W. 3..	W. 2.....
Forest City.....	—38	—28	—29	—28	W. 2..	W. 2..	W. 2..	W. 2.....
Tamarack.....	—35	—24	—28	—32	N. 4.....	N. 4.....	.....	W. 3.....
KANSAS.								
Lawrence.....	—17	— 1	— 2	8	SW. 3..	SW. 2..	SW. 1..	NE. 1..
Fort Riley.....	—12	7	4	5	W. 1..	W. 2..	W. 2..	N. 2.....
Manhattan.....	— 8	15	— 2	— 2	.....	.....	.....	.....
NEBRASKA.								
Bellevue.....	—17	—10	— 3	— 8	W. 1..	W. 3..	NW. 2..	NE. 2..
Elkhorn City.....	—20	— 9	— 9	—13	NW. 2..	W. 2..	W. 2..	W. 1.....
COLORADO TERRITORY.								
Montgomery.....	8	20	16	14	W. 3..	NW. 6..	W. 1..	W. 1.....
IDAHO TERRITORY.								
Fort Laramie.....	—12	—16	— 9	— 3	SE. 2..	SE. 2..	SW. 2..	SE. 2..
OREGON.								
Auburn.....	30	40	32	30	.....	.....	.....	.....
WASHINGTON TERRIT'Y.								
Neeah Bay.....	38	43	41	40	SE. 2..	SE. 3..	SE. 2..	SW. 3..
MEXICO.								
Mirador.....	48.4	50.5	47.5	50	N.NE. 1.	E.NE. 1.	S. 1.....	SW. 2..
NEW GRANADA.								
Aspinwall.....	76.5	80.0	77.7	71.6	E. 1....	N. 3....	NW. 2..	S. 1.....

* January 2.

† The mean temperature of the 1st and 19th (each 48.8°) was the lowest of the month, and nearly five degrees lower than any other day.

MISCELLANEOUS PHENOMENA FOR JANUARY.

AURORA.

- January 11.*—Cornishville, Maine.—Northern lights from 9 to 11 p. m.
January 12.—Fort Ann, New York.—Aurora at 9 p. m.; brightness moderate.
January 24.—New Castle, Indiana.—Faint aurora from 8 to 9 p. m.
January 25.—New Castle, Indiana.—Faint aurora from 8 to 9 p. m.
January 26.—North Littleton, New Hampshire.—Aurora in the north quite dim, with clouds in the north at 8 p. m.
January 30.—Urbana, Ohio.—Aurora; the light was uniform and white; no appearance of coruscations. The centre was about N. 30° W., reaching upwards 35°. It was visible between 8½ and 9½ p. m.; heavy clouds then obscured it.

LIGHTNING.

- January 1.*—Saint John, New Brunswick.—Three or four vivid flashes of lightning to the eastward at 5 p. m., followed by as many loud peals of thunder. Snow and rain all day.
January 15.—Key West, Florida.—Heavy shower about 2 a. m., with heavy thunder; squall from the west.
January 15.—Mirador, Mexico.—Distant thunder in the night.
January 19.—Theresa, New York.—Chain lightning in the southwest, with three peals of thunder, at 3.30 p. m.; wind north, snowing.
January 19.—Gouverneur, New York.—Thunder and lightning at 4 p. m.; two sharp flashes of lightning, followed by thunder. The wind had been in the northeast all day up to a short time before 4 p. m., when it suddenly changed to the southeast. At 4.15 the wind again changed to the northeast, sleet falling at the time. The barometer had fallen rapidly all day, and had reached 28.70 (the lowest during the month) at the time of the thunder and lightning, and immediately after commenced to go up.
January 27.—Augusta, Illinois.—Shower at 7 a. m., with some thunder.
January 27.—Iowa Falls, Iowa.—This evening, at about 6 o'clock, four flashes of lightning to the north, and one report of rumbling thunder to the far north.
January 28.—Augusta, Illinois.—Lightning, with some thunder, in the southwest all the evening, from 7 p. m. to 9 p. m.; at 10 p. m. a sudden dash of rain for a few minutes.
January 28.—Manchester, Illinois.—Diffuse lightning in the west after 6 p. m.; thunder in the night.
January 28.—Duquoin, Illinois.—Severe thunder.
January 28.—Waverly, Illinois.—Diffuse lightning in the west from sunset until 10 p. m.
January 28.—Harrisonville, Missouri.—Very distant thunder in the southwest at 4½ p. m., and continued, at intervals of from five to fifteen minutes, till about 6½ p. m., when it became nearer, with diffuse lightning, and commenced raining; gentle showers till 8½ p. m.; lightning and thunder passing over this place towards the northeast. Distant diffuse lightning still continues in the northeast at 9 p. m.
January 28.—St. Louis, Missouri.—Lightning at a distance, towards W. NW., from 7 to 8 p. m.
January 28.—Lawrence, Kansas.—A violent thunder-storm.
January 28.—Fort Riley, Kansas.—Diffuse lightning in the southwest from 7 to 11 p. m.
January 28.—Olatha, Kansas.—Thunder, lightning, and rain in the night.
January 28.—Muscatine, Iowa.—Thunder and lightning at 9 p. m.

January 28.—Dubuque, Iowa.—Rain, hail, and lightning during the evening. Rain continued all night without intermission.

January 28.—Muscatine, Iowa.—Thunder and lightning at 9 p. m.

January 28.—Green Bay, Wisconsin.—From 6 p. m. to 8 p. m. flashes of lightning at the southwest, without thunder.

January 28.—Manitowoc, Wisconsin.—Lightning at a distance in the evening, southwest.

January 29.—College Hill, Ohio.—Thunder and lightning in the evening, attended with a shower of rain.

January 29.—New Castle, Indiana.—From 4 p. m. to 9 p. m. thunder in the southwest at considerable intervals, and occasional diffuse lightning; at 5½ p. m. light spring-like showers till 8 p. m. Occasional violent gusts of wind. Most of the day very warm and pleasant. A most furious thunder-storm prevailed from 10 p. m. of the 29th till 4 a. m. on the 30th. The thunder was nearly continuous, heavy, sharp, and crashing; lightning vivid and continuous, zigzag, forked, and sheet. Hailed several times during the night; showers very sudden and dashing, but of short duration.

January 29.—New Albany, Indiana.—Considerable thunder and lightning this evening from 6 p. m. to midnight, followed by rain towards morning.

January 29.—Muncie, Indiana.—Thunder-storm; first appearance of lightning 8.30 p. m. At 9.30 the thunder became audible; continued to approach nearer and nearer. Commenced to rain at 10.30. From five to twenty-five pulsations between the flash and sound; many of the claps very heavy. The storm, or rather succession of storms, continued until about three o'clock in the morning of the 30th. Rain fell at one time in torrents, but only for a few moments. I have seldom seen a harder storm during the summer months. The storm came from the southwest. Chain lightning.

January 29.—Spiceland, Indiana.—Some thunder in the west, about 5 p. m., not very heavy, and commenced raining; clouds broken in the evening; lightning in the west from 8 to 9 p. m.; raining at 9 p. m.

January 29.—New Harmony, Indiana.—At 3 p. m., slight shower; at 9 p. m., thunder and lightning; one hour after midnight, heavy thunder; some rain during the night.

January 29.—Pekin, Illinois.—Rain at 9.40 a. m., very dark, wind from west; at 9.58 a. m. north; rain stopped at 10 a. m.; 8.40 p. m. faint diffuse lightning and rolling thunder low in the southwest; 8.45 p. m., diffuse lightning in the south and southwest at short intervals; frequent rolling thunder in the west; rain in showers of about one minute's duration, with about ten seconds intervals, till 9 p. m. At 9 p. m. fast rain for a few minutes; diffuse lightning in the south, southwest, and northeast; rolling thunder in north and southeast; 9.30 p. m. diffuse lightning in southwest, west, and north; rolling thunder in north and northeast; wind from northeast; 9.40 p. m., thunder faint, low in north and northeast; rain stopped before 11 p. m.

January 29.—Peoria, Illinois.—Thunder-shower from the east at 9 p. m.

January 29.—Galesburg, Illinois.—Thunder at 8 p. m., with slight rain; only two peals, explosions not heavy.

January 29.—Winnebago, Illinois.—Gentle, genial rain from 10.30 a. m. till 3 p. m. Moderate rain set in at 7 p. m., and continued until about 4 a. m. of the 30th; sharp lightning, followed instantly by heavy, long-continued thunder, twice shortly before midnight.

January 29.—Upper Alton, Illinois.—Thunder and lightning, and heavy showers of rain, without much wind. During the day several distinct thunder-showers like April.

January 29.—Ottawa, Illinois.—At 9.30 p. m., electrical discharges in the east; at 11.20 hard thunder-storm; lightning diffuse in the southwest; thunder tolerably heavy.

January 29.—Waverly, Illinois.—Shower at 8 a. m. from the west, with heavy thunder, and vivid zigzag lightning. Four clouds, with heavy thunder and zigzag lightning, came up from the west and southwest at different times, between 7 and 10 p. m. Seven-tenths of an inch of rain fell during these showers.

January 29.—Augusta, Illinois.—Lightning from $7\frac{1}{2}$ p. m. to 9 p. m. in the east, with some thunder occasionally.

January 29.—Laborville, Missouri.—Slight rain from 8.30 a. m. till 10 a. m. At about 5 p. m. a dark cloud came up, with loud noise from the south, and hail fell for about three minutes.

January 29.—Canton, Missouri.—Diffuse lightning overhead from $7\frac{1}{2}$ to $9\frac{1}{2}$ p. m.

January 29.—St. Louis, Missouri.—Thunder-storm from 8.15 to 10 a. m. from the west and southwest, accompanied by a few hail-stones of small size.

January 29.—Lyons, Iowa.—Thunder at 11 p. m.

January 30.—Philadelphia, Pennsylvania.—About 4 a. m. a thunder-storm commenced, and continued about an hour. It was accompanied with vivid lightning, hail, and heavy rain.

January 30.—Byberry, Pennsylvania.—This morning about 5 o'clock during the storm a sharp flash of lightning, followed by a heavy clap of thunder.

January 30.—Kelley's Island, Ohio.—Distant thunder from 6.30 to 7 o'clock this morning.

January 30.—Urbana, Ohio.—Heavy thunder about five o'clock a. m.; continued half an hour.

January 30.—Portsmouth, Ohio.—Lightning at the south.

January 30.—Austinburg, Ohio.—Thundered at 8 a. m.; then rain at $8\frac{1}{2}$ a. m.; rain and fog in the evening.

January 30.—Welshfield, Ohio.—Thunder-storm to the southwest at 6 p. m.; not severe.

January 30.—Tiskilwa, Illinois.—Thunder and lightning last night about midnight, several times, in the north and east.

January 31.—Tioga, Pennsylvania.—Thunder-storm at $5\frac{1}{2}$ p. m.

January 31.—Duquoin, Illinois.—Light thunder.

January 31.—St. Louis, Missouri.—Light thunder at 3 a. m.

The thunder-storms in the latter part of January were preceded by a week of very warm weather. At Fort Laramie, Idaho Territory, where the mercury was frozen on the 5th and 6th of January, the mean temperature of seven successive days, from the 21st to the 27th of the same month, was 44.95° ; and at Laborville, Missouri, the mean temperature of the seven days from the 23d to the 29th was 56° .

TEMPERATURE OF WELLS, &c.

January 9.—Lyons, Iowa.—Temperature of water in well, 42° ; air zero.

January 16.—Waverly, Illinois.—Temperature of well-water 44° , taken from bottom of a well eighteen feet deep, covered with plank two inches thick.

January 18.—Kingston, Ohio.—Temperature of water in well 43.5° ; surface of water nine feet four inches below the ground; depth of water five feet four inches.

FREEZING OF RIVERS, GROUND, &c.

January 1 to 31.—Oil City, Pennsylvania.—1st. Mild until 4 a. m.; wind veered suddenly to SW., when it commenced freezing; steamer Ida Rees arrived. 2d. River frozen over at night. 3d. Ice gorge from Oil creek came

down at 5 p. m., bringing several boats into the river, and another at 8 p. m., breaking up ice in river, destroying many boats, and pushing some of them into the oil sheds. 5th. Footmen crossing river on the ice. 7th. Loaded teams crossing the river on the ice. 8th. Ducks and gulls in open places on the river. 16th. Roads very smooth and hard, ground frozen about twelve inches deep. 25th. Mud four inches deep; ice moved from up creek and gorged at McClintock's, and backing the water so as to cause several families to vacate their dwellings. At 7 p. m. ice moved from river above to head of eddy, crushing several boats. 26th. Ice moved out of eddy, in river, at 6 p. m., crushing and sinking many boats; water about five feet deep; snow quite gone. 27th. Ice from river came down at 11.40 a. m., running very heavy until 5 p. m., carrying away many boats, and leaving but few uninjured in the river; water ten feet four inches. 29th. Steamer Cottage arrived. 30th. Ice running from Oil creek at night. 31st. Steamers Advance and Monitor arrived; roads breaking up.

January 1.—Haddonfield, New Jersey.—Farmers ploughing sod readily to-day; no frost in the ground. 2d. Ice formed last night thick enough to bear a man.

January 2.—Laborville, Missouri.—The Mississippi closed this day.

January 3.—Byberry, Pennsylvania.—Ice five inches thick.

January 1 to 31.—New Bedford, Massachusetts.—2d. The high wind prevented the freezing of the river and harbor. 3d. A sheet of ice over the river and harbor. 4th. River passable by pedestrians and skaters above the bridge; ice broken daily below the bridge by the steam ferry-boat to Fairhaven. 29th. Ice chiefly gone above the bridge; would have wholly disappeared but for the obstruction offered by that structure east of Pope's island. 31st. No ice in the river, and very little, if any, frost in the ground. The harbor below the bridge has been at no time seriously obstructed by ice to prevent the entrance of vessels from sea, and their ready access to the wharves.

January 6.—Progress, New Jersey.—Delaware river frozen over.

January 8.—Skaneateles, New York.—Lake frozen nearly over. 12th. Ice cutting commenced. 23d. Great quantities of ice taken from the lake the week past.

January 10.—Lyons, Iowa.—Ice in the river from sixteen to twenty-two inches thick.

January 11.—Lawrence, Kansas.—Ground frozen one foot and ten inches.

January 11.—Fishkill Landing, New York.—Crossing the river with heavy teams. 25th. Ferry-boat crossed.

January 12.—Sandwich, Massachusetts.—Ice on pond eight inches thick.

January 12.—Urbana, Ohio.—Ice twelve inches thick on ponds.

January 9 to 12.—Philadelphia, Pennsylvania.—The Delaware river almost covered with floating ice. It hinders navigation but little.

January 14.—East Fairfield, Ohio.—Ice on mill-dams seven inches thick.

January 18.—Byberry, Pennsylvania.—The cold spell for the greater part of this month has been something unusual in this vicinity. Ice has been housed ten inches in thickness. The Delaware river has been frozen over at Andalusia sufficiently to bear a man walking across. At Bristol, horses have been driven across on the ice.

January 19.—Byberry, Pennsylvania.—Raining all night and until about ten o'clock to-day; creeks considerably swollen; ice broken up on some of the dams, and floating down the creek in cakes from two to three and from eight to ten feet square, some of them measuring sixteen inches thick.

January 11 to 21.—Portsmouth, Ohio.—11th. The Ohio river closed here to-day at 7.10 a. m.; gorge broke away at 3 p. m., making a crashing noise. 12th.

River closed again at 12.30 p. m. On the 21st gorge broke away again at 5.30 a. m., carrying several flatboats down.

January 22.—Pekin, Illinois.—Crossed the Illinois river on the ice.

January 23.—Muscatine, Iowa.—Ice on the river eighteen to twenty inches thick; very solid.

January 25.—Progress, New Jersey.—Ice broke up in the Delaware river, which has been frozen over to within a few miles of Philadelphia so that persons could cross. It has been closed since the 6th instant, nineteen days. It has not been closed so long during the past six years, my term of observation. Ground frozen seven inches; light sandy soil.

January 25.—Rochester, New York.—River rising, and the ice going out. 26th. Freshet in the Genesee. 27th. Genesee river breaks up, and the ice went over the falls this afternoon.

January 26.—Rutland, Vermont.—Ground frozen three feet.

January 26.—New Lisbon, Ohio.—Very muddy; creek high; ice broke up.

January 26.—Augusta, Illinois.—Frost nearly all out of the ground.

January 26.—St. Louis, Missouri.—The Mississippi river began to break up and the ice to move after having been closed for a period of twenty-three days, and during that time crossed by heavy teams.

January 28.—Fort Riley, Kansas.—Ice broke up, and rivers rising from the 28th to the 31st.

January 29.—Sandwich, Massachusetts.—No ice in the pond this morning.

January 30.—Kelley's Island, Ohio.—Channel between the island and Marblehead, and the harbors, entirely clear of ice.

January 30.—Urbana, Ohio.—Frost out of the ground in level exposed positions.

January 30.—Ottawa, Illinois.—Ice breaking up in the Illinois and Fox rivers; their waters four feet.

January 30.—Richland, Nebraska.—Loup Fork open.

January 31.—Beverly Philipstown, Garrison's post office.—Hudson river obstructed by floating ice on the 10th of December; closed on the 17th; remained closed throughout January; crossing good for teams most of the time; ice a foot in thickness.

January 31.—Tioga, Pennsylvania.—The ground has been frozen from twelve to thirty-six inches, according to soil.

January 31.—Jamestown, New York.—Ground is frozen to the depth of twenty inches.

January 31.—Iowa Falls, Iowa.—The ice on the river is about twenty-eight inches thick.

Chestertown, Maryland.—On the 12th of this month the ground was frozen to the depth of about four inches. The frost was all out of the ground by the 25th, and in three or four days more the ground was well settled. Chester river was closed to navigation from the 2d to the 20th, which is longer than has happened before for the last four years, the length of my residence here.

METEORS.

January 11.—Cannonsburg, Pennsylvania.—Splendid meteor at 7 a. m.; course from northwest to southeast.

January 14.—North Littleton, New Hampshire.—At half past 9 p. m. observed a shooting star from the right forepaw of Ursa Major; course southeast.

January 16.—South Hartford, New York.—A brilliant meteor was observed about 9½ p. m. When first seen, at an elevation of twenty degrees, it was falling to the earth from the direction of Gemini, growing continually until it descended below the horizon, distinctly illuminating the trees on the top of an adjacent mountain, behind which it disappeared.

- January 19.*—New York city.—Meteor from west to east, at 7 p. m; small.
January 22.—Embarrass, Wisconsin.—Bright meteor in the east at 9 p. m.
January 23.—Welshfield, Ohio.—A large meteor was seen at 9 p. m., a little north of east, at an altitude of about 45°. It shot rapidly to the southwest and disappeared in about three seconds, leaving a bright trail behind it.
January 23.—Fort Riley, Kansas.—Shooting stars in the southeast at 10 p. m.
January 26.—North Littleton, New Hampshire.—At 7 p. m. a shooting star between Ursa Minor and tail of Draco; course northwest.
January 28.—North Littleton, New Hampshire.—Several shooting stars, from 6 to 9 p. m.; course northwest.
January 30.—Fort Riley, Kansas.—Shooting stars in the southeast at 9 p. m.

APPEARANCE OF BIRDS, BUDDING OF TREES, &c.

- January 25.*—Sykesville, Maryland.—Bluebirds very merry.
January 27.—Upper Alton, Illinois.—Geese in numbers flying north.
January 27.—Canton, Missouri.—Bluebottle flies about. 28th.—Honey bees out every day since the 23d.
January 28.—Lunenburg, Vermont.—A robin was seen.
January 28.—Portsmouth, Ohio.—Some lilac, cherry, and peach trees are considerably swelled.
January 29.—Waverly, Illinois.—First flight of wild geese noticed going northward. 30th.—Wild geese returning southward again.
January 29.—St. Louis, Missouri.—A flock of wild geese flying towards N.W.
January 30.—Byberry, Pennsylvania.—For nearly a week past the weather has been quite warm near the middle of the day, but freezing a little at night, causing wheat and clover roots to heave out. Birds hopping about quite briskly; numbers of goldfinches (*fringilla tristis*) and black-capped titmouse (*parus atricapillus*) about. A few plants in flower, some of them rarely found so early in the season: witch hazel, *Hamamelis virginiana*, *Jasminum fruticans*, *Stellaria media*, *Capsella bursapastoris*, *Poa annua*, and *Veronica peregrina*.
January 30.—New Albany, Indiana.—This afternoon closed a cycle of remarkably fine winter weather. It was as spring time; the birds were singing as in May—red birds, wrens, and even the song sparrows. A soft or swamp maple (*acer rubrum*) was observed in full flower to-day. During the afternoon the thermometer began to fall, dropping down from 67° to 45°, and at 9 p. m. to 39°. The Ohio river, which had been gorged with ice at several points, has become entirely free of it. The snow which covered the hills has disappeared.

MISCELLANEOUS AND SUMMARIES.

- January 4.*—Progress, New Jersey.—First snow of the winter; ground partially covered at daylight.
January 19, 20.—Mirador, Mexico.—Hoar-frost in the moist valleys, and at a height of 4,500 feet frost which destroyed the whole harvest of tobacco.
January 21.—Fort Ann, New York.—Hail-storm in the southeast; width of path, two and a quarter miles; the size of stones about as large as buck-shot; quite a large quantity fell. It continued about fifteen minutes, and did no damage.

January 23.—Spiceland, Indiana.—Snow melted very much; sleighing nearly over. *30th.*—There are still a few spots of snow, though the ground has been nearly bare for several days.

January 23.—Augusta, Illinois.—Good sledding so far the whole month. *24th.*—Sledding gone.

January 23.—Newcastle, Indiana.—Snow melted very rapidly; sleighing spoiled. To-day is the twenty-first day of excellent sleighing. *24th.*—Snow mostly off the roads in exposed places.

January 27.—Urbana, Ohio.—Snow off the ground, having covered it twenty-eight days.

January 27.—Muscatine, Iowa.—End of sleighing; snow thawed off by the sun five days past. Five weeks of good sleighing.

January 28.—Sykesville, Maryland.—At 2 p. m. against the south side of the house in the sun the mercury ran up to 100° in fifteen minutes.

January 31.—Lisbon, Maine.—The winter thus far has been remarkably pleasant. There has been but little snow on the ground at a time, but the sleighing has been excellent. The small streams and brooks have not been frozen so thick as common, and some have not frozen at all, which are usually frozen earlier than this date. Snow four inches deep in the roads, seven in the woods.

January 31.—Littleton, New Hampshire.—Snow about six inches deep in the fields.

January 31.—Brandon, Vermont.—We have had partial sledding during the month with very little good sleighing, mostly owing to the ice formed in December. The snow has not exceeded three and a half inches at any one time.

January 31.—Tioga, Pennsylvania.—The latter part of the month was very unfavorable for winter grain and clover.

January 31.—Bellevue, Nebraska.—We have had quite a January thaw, snow gone and much mud.

January 31.—Lunenburg, Vermont.—January has been very pleasant for a winter month; sleighing excellent, snow about eight inches deep in the fields. The sun settled it some the last of the month. The snow is not drifted, but the roads are in many places icy. Ground frozen hard; ice in ponds two feet thick.

January 31.—Pomfret, Connecticut.—January has been a fine winter month, weather steady, cold not extreme, not below zero, and only once (on the morning of the 2d) as low as zero. The fall of rain and snow moderate. The mean temperature between two and three degrees above the average of the last twelve years.

Neeah Bay, Clallam county, Washington Territory, latitude 48° 21' 49'', longitude 124° 37' 12''.—The month of January has been very unpleasant and a larger precipitation of rain and lower temperature than during January, 1863. During that month the quantity of rain was 16.6-10 inches, and the mean temperature was 44.8°. In January, 1864, the quantity of rain was 24½ inches, and temperature 41°. In January, 1863, the vegetation was well developed, but was subsequently much retarded by the cold weather during February, with a consequent late spring. The unusual quantity of rain during December, 1863, and January, 1864, have kept the ground so cold and wet that nothing except some of the earliest and most hardy plants, such as skunk cabbage and nettles, have given any indications of germinating. Should February prove mild, we may look for an earlier spring than last year.

Snow-storm in the tropics.

Mauna Loa and Mauna Kea, the high mountain peaks on Hawaii, and Mount Haleakala, on Maui, are represented as now covered on their summits with beautiful white mantles of snow; the drifts in the gulches and valleys being often from twenty to thirty feet deep. Although not very cool here in Honolulu, (the thermometer ranging at night from 65° to 70° .) yet the presence of snow on these mountains indicates cold weather higher up, their altitude being from ten thousand to fourteen thousand feet. There have been several snow-storms on them during the past few weeks, and the scene is represented to be one of indescribable grandeur. Those living on the island, where they occur, can seldom see these storms so well as those who chance to be passing in schooners. To the former the scene is generally obscured by clouds overhead, but to the latter the sight at a distance is magnificent, as the dark heavy masses of clouds roll and tumble over and around the lofty summit, they drop their snow mantles, which lower down turn into rain or melt away as fast as it touches the surface. On some occasions the lightning, darting around, from the cold upper strata of clouds, three or four miles high, to the lower and warmer ones, is said to be splendid, and unequalled in any other country or latitude. Snow-storms in the tropics are among the most beautiful sights imaginable, and the few who are privileged to see them witness some of nature's grandest exhibitions.—(*Commercial Advertiser*, Honolulu, Sandwich Islands, January 28.)

Hourly observations of thermometer at Fort Laramie, Idaho Territory, from 4 p. m., January 4, to 4 p. m., January 7, 1864.

Hour.	January 4.	January 5.	January 6.	January 7.
1 a. m. ....	.....	—33	Mercury frozen.	Mercury frozen.
2 a. m. ....	.....	—34	.....do.....	.....do.....
3 a. m. ....	.....	—35	.....do.....	.....do.....
4 a. m. ....	.....	—37	.....do.....	.....do.....
5 a. m. ....	.....	—39	.....do.....	.....do.....
6 a. m. ....	.....	Mercury frozen.	.....do.....	.....do.....
7 a. m. ....	.....	.....do.....	.....do.....	.....do.....
8 a. m. ....	.....	.....do.....	.....do.....	—32
9 a. m. ....	.....	—39	.....do.....	—29
10 a. m. ....	.....	—36	—34	—20
11 a. m. ....	.....	—31	—23	—15
12 a. m. ....	.....	—22	—20	—12
1 p. m. ....	.....	—20	—20	—11
2 p. m. ....	.....	—22	—20	—10
3 p. m. ....	.....	—22	—23	— 9
4 p. m.	—15	—23	—30	— 8
5 p. m.	—19	—32	—35	
6 p. m.	—21	—36	—38	
7 p. m.	—22	Mercury frozen.	Mercury frozen.	
8 p. m.	—23	.....do.....	.....do.....	
9 p. m.	—24	.....do.....	.....do.....	
10 p. m.	—25	.....do.....	.....do.....	
11 p. m.	—30	.....do.....	.....do.....	
12 p. m.	—32	.....do.....	.....do.....	

Providence, Rhode Island.—The mean temperature this month, 27.3° , is exactly the average of January for thirty-three years. The warmest January in thirty-three years was that of 1843, mean temperature 34.2° ; the

coldest was that of 1857, mean temperature 16.3° , showing a difference of 17.9° in mean temperature. Total quantity of rain and melted snow for the month, 4.66 inches, which is 1.27 inches above the average for thirty-three years. The following table gives the mean temperature of the air, and the amount of rain and melted snow, for January in each of the last five years. The preceding twenty-eight years may be found in the volume of observations made at Providence by Professor Caswell, and published by the Smithsonian Institution.

Year.	Temperature.	Rain.
1860.....	30.5.....	0.80
1861.....	24.2.....	4.87
1862.....	25.5.....	6.06
1863.....	32.2.....	3.61
1864.....	27.3.....	4.66
Mean of five years.....	27.9.....	4.00

Newark, New Jersey.—Fogs and clouds ushered in the new year with a rising temperature, the mercury having continued to move upward during the whole of the night of the 31st of December and the morning of the 1st, reaching 49° about noon, when a sudden change took place. The clouds, which had been gradually breaking away, rolled off before a western gale, and the weather rapidly grew colder, the temperature before midnight falling to 11° , and before the morning of the 2d it was down to 8° . The mercury afterwards rose again, and subsequently falling, reached the minimum of the month, 6° , on the 10th. This cold was far from being unprecedented, the record of thirteen of the last twenty winters showing lower readings of the thermometer in January. After the 11th there was no day that the temperature did not rise above the freezing point in the shade, and from the 22d to the 29th, inclusive, the weather was more like early spring than mid-winter.

The amount of rain and melted snow was 1.73 inch, which is nearly two inches less than the average for the month, and a smaller quantity than fell in any January in the last twenty years except one, 1849.

Mean temperature of January for thirteen years at Manitowoc, Wisconsin, by Jacob Lüps.

Year.	Temperature.	Year.	Temperature.
January, 1852.....	21 ^o	January, 1859.....	24.80
January, 1853.....	29.6	January, 1860.....	24.48
January, 1854.....	17	January, 1861.....	22.45
January, 1855.....	24.66	January, 1862.....	20.87
January, 1856.....	13	January, 1863.....	29.17
January, 1857.....	12.76	January, 1864.....	20.16
January, 1858.....	32.12	Mean of 13 years.....	22.47

Amount of rain and snow at Neeah Bay, Washington Territory, during each month in 1863, measured by James G. Swan, teacher of Agricultural and Industrial School, Makah Indian reservation.

Month.	Inches of rain and melted snow.	Month.	Inches of rain and melted snow.	Month.	Inches of snow.
January	16.6	July	6.1	January	2.5
February	14.2	August .....	.2	February	20.0
March	12.4	September	11.0	December	4.1
April	4.7	October	13.2	Total, (which is included in the preceding amount of rain)	26.6
May	4.6	November	14.7		
June	7.2	December	27.3		
		Total, 1863.....	132.2		

After the publication of the last report we received the following from the observers named, which are now given as

Addenda to the Report for January, 1864.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
VERMONT.								
Calais	Washington	James K. Tobey....	24	38	7	—20	17.6	<i>In.</i>
NEW YORK.								
Schenectady	Schenectady	Robert M. Fuller ...	24	53	7	—7	22.9	.....
Rochester	Monroe	Prof. C. Dewey	28	56	2	—4	25.7	2.91
Do	do	M. M. Mathews, M. D.	28	56	2	—4	25.9	2.91
Wilson	Niagara	E. S. Holmes	28	55	2	—5	25.3	1.91
Oneida	Madison	S. Spooner, M. D. ...	28	56	2	2	28.0	.....
Flatbush	Kings	Eli T. Mack	29	59	2	5	29.7	1.50
Garrison's	Putnam	Thos. B. Arden.....	27	52	8	1	27.0	2.08
OHIO.								
Hillsboro'	Highland	J. McD. Mathews....	28	66	1, 2	—7	24.9	2.25
Eaton	Preble	Ollittippa Larsh	30	56	1	—15	25.0	0.55
MICHIGAN.								
Clifton	Keweenaw	W. Van Orden, jr ..	27	46	1, 2	—15	21.0	5.82
Holland	Ottawa	L. H. Streng	28	46	1	—8	23.9	2.06
INDIANA.								
Indianapolis	Marion	Royal Mayhew					25.3	2.30
ILLINOIS.								
DuQuoin	Perry	Chas. Zeigler	27, 28, 29	70	9	—16	29.0	2.00
Manchester	Scott	Dr. and Miss Grant ..	27, 28	68	1	—24	24.2	3.12
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lups	24	47	2	—26	20.2	1.77
Odanah	Ashland	Edwin Ellis	26, 27	50	2	—28	17.5	0.80
Madison	Dane	Prof. J. W. Sterling ..	27	45	1	—29	15.0	0.60
Embarrass	Waupaca	J. Everett Breed....	27	53	2	—36	15.2	1.84
IOWA.								
Iowa City	Johnson	T. S. Parvin, A. M. ..	27	55	1	—26	15.9	0.62
COLORADO.								
Montgomery	Park	James Leuttrell.....	28	48	5	—9	18.5	4.55

FEBRUARY.

By reference to the table of mean temperature and amount of rain, at the end of this report, it will be seen that the month of February has been warm and dry throughout the country generally, the temperature being considerably above the average, and the amount of rain hardly more than half the average quantity. The winter, also, taken as a whole, notwithstanding some severe periods of cold, was warm and dry. At Boston the mean temperature of February was three and two-thirds degrees above the average of forty years.

A very low temperature prevailed about the middle of February throughout the United States, and extended beyond the Atlantic coast. The following table gives the readings of the thermometer at 7 a. m., 2 p. m., and 9 p. m. on each day from the 15th to the 20th, inclusive, at all the stations from which registers have been received. From Bermuda, (in the Bermuda Royal Gazette,) we have records of the temperature at noon and the daily mean. By these it appears that this cold was as distinctly marked in that island as on the continent, the mean temperature of the first week being 63.71° , of the second week 65.14° , of the third week, (from the 15th to the 21st, inclusive,) 57.71° , and of the fourth week 62.71° . The coldest day of the winter was the 21st February, mean temperature 54° , unless a colder day occurred in the first week of January, of which we are not informed, as the record for that week has not been received. The mean temperature was not below 61° on any day in February except during the third week.

At Boston the self-registering thermometer indicated a temperature of 3° below zero in the night of the 17th; on the 18th, at 6 a. m., it stood at $2\frac{3}{4}^{\circ}$ below; at half past 8, zero; and at 10 a. m., 5° above. At Cambridge Observatory the thermometer in the course of the night of the 17th was at -7° ; at sunrise of the 18th, -5° . Previous to the 17th the thermometer at Boston had not fallen this winter lower than 5° above zero, which was on the 7th of January. The meteorological correspondent of the Boston Traveller says the temperature of -3° has not been experienced in Boston so late in the winter since 1837, twenty-seven years ago, and within the last forty years it has fallen below zero after the middle of February on only four days at sunrise, the last time eighteen years since, as follows: 1833, March 3, -5° ; 1836, February 19, $-3\frac{1}{2}^{\circ}$; 1837, February 18, -3° ; 1846, February 27, -1° .

The cold in the middle of February was preceded, on the 15th or 16th, by a snow-storm which was not of great depth generally. In a few places it fell eight to twelve inches, and at Halifax, Nova Scotia, the telegraph reported it eighteen inches.

Cold in the middle of February, 1864.

Place.	Feb. 15.			Feb. 16.			Feb. 17.			Feb. 18.			Feb. 19.			Feb. 20.		
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.
NEWFOUNDLAND.																		
St. John	22	25	...	4	12	5	30	33	0	20	24	...	16	18	2	10	16	-3
NEW BRUNSWICK.																		
St. John	10	16	7	3	25	20	14	10	-7	-9	1	0	-10	11	-1	0	18	8
MAINE.																		
West Waterville	4	22	17	17	34	27	4	8	-8	-12	16	3	-21	26	-2	4	28	10
Williamsburg	0	14	12	8	10	8	-2	-6	-14	-12	2	-6	-20	8	4	-2	20	16
Lisbon .....	...	...	...	...	...	...	0	4	-10	-12	5	-7	-24	...	...	...	...	...
Cornishville	5	21	16	16	23	18	-3	-6	-11	-8	...	-2	-4	10	4	7	24	18
Perry .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Steuben	15	18	10	13	31	28	8	3	-9	-11	7	-3	-16	12	-6	2	30	5
NEW HAMPSHIRE.																		
Claremont	4	19	14	16	28	19	-2	0	-11	-12	6	-7	-17	12	-1	8	28	24
Littleton	-6	14	9	10	25	16	-5	-8	-14	-22	0	-18	-28	10	-10	2	25	10
North Littleton	-13	7	1	5	19	9	-14	-12	-19	-23	-3	-21	-27	2	-14	-5	14	24
Stratford	-6	14	8	16	25	14	-11	-16	-18	-20	-3	-14	-25	6	-9	5	22	7
VERMONT.																		
Brandon	1	17	18	21	32	16	-4	-5	-12	-21	6	-4	-10	18	6	13	28	22
Lunenburg	4	-15	10	11	28	0	-12	-14	-20	-25	-4	-15	-25	0	-10	-6	14	16
Craftsbury	-6	13	8	14	23	11	-14	-17	-17	-18	-2	-7	-10	6	1	7	26	18
Burlington	-6	12	15	22	21	13	-12	-8	-13	-13	1	-1	-4	11	7	11	25	20
Rutland	0	30	24	22	38	20	2	10	-4	-8	24	2	-4	32	8	26	42	26
Calais	-11	10	7	10	23	10	-16	-12	-18	-20	0	-11	-16	7	-5	5	22	16
MASSACHUSETTS.																		
New Bedford	17	30	29	33	37	27	8	8	3	0	15	8	4	20	11	18	32	25
Mendon	12	26	24	26	32	20	3	3	-1	-6	12	3	0	15	6	10	25	23
Amherst	12	24	25	2	32	19	3	4	-2	-4	11	7	-1	14	8	11	30	24
Williamstown	8	23	23	21	27	14	-2	-1	-8	-10	5	-2	-5	11	1	10	26	21
Baldwinsville	8	23	25	27	28	8	-4	-6	-7	-8	10	10	-16	9	2	7	27	24
Topsheld	16	30	29	32	39	27	10	9	0	-6	10	2	-3	11	6	13	30	23
Sandwich	16	26	26	28	38	...	8	8	2	-2	18	7	24	20	7	18	32	20
Westfield	14	24	26	20	31	18	3	5	0	-3	10	5	-1	16	7	8	32	26
RHODE ISLAND.																		
Providence .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CONNECTICUT.																		
Pomfret	12	27	23	27	31	18	1	3	-3	-6	9	3	-3	11	5	10	26	22
New Haven	16	32	31	29	36	21	7	12	4	-2	13	12	1	15	11	12	28	26
NEW YORK.																		
New York, 175 Second avenue .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
New York, Institution Deaf and Dumb	25	39	35	33	37	23	11	11	8	8	21	17	8	22	17	6	16	35
Oswego	8	22	20	23	22	10	-3	-2	4	-4	13	4	3	13	9	22	34	26
Auburn	12	24	20	22	26	10	0	0	0	0	10	10	6	14	10	18	34	28
Gouverneur	-10	13	16	9	24	-2	-19	-4	-10	-27	6	-5	-16	15	9	16	27	26
Fredonia	20	36	36	22	18	3	-3	0	1	-1	7	1	2	-2	12	13	18	33
Seneca Falls	12	33	30	28	20	12	0	0	0	0	10	4	2	24	24	22	34	32
Jamestown	12	40	39	18	15	0	-14	-2	-12	-13	-5	-8	-13	9	4	10	39	22
Fishkill Landing	17	30	29	29	32	19	8	9	5	4	18	12	4	16	13	15	34	26
Garrison's	5	...	27	27	...	19	5	5	3	1	14	10	3	15	7	10	29	25
Clinton .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rochester, (Dewey)	13	34	33	23	24	9	-1	3	1	-2	12	1	-2	12	13	22	35	29
Rochester, (Mathews)	15	33	33	24	24	10	3	2	0	2	10	2	2	13	14	22	35	30
Skaneateles	6	35	28	28	25	8	-5	-2	-2	-4	12	-3	-4	14	11	14	31	26
Fort Ann .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

*St. John's, Newfoundland, self-registering thermometer -10° in the night of the 19th, which was the lowest during the winter.

Cold in the middle of February, 1864—Continued.

Place.	Feb. 15.			Feb. 16.			Feb. 17.			Feb. 18.			Feb. 19.			Feb. 20.		
	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.
NEW YORK.																		
South Hartford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Trenton	3	21	16	17	27	18	-1	-5	-11	-15	11	6	-4	16	8	16	26	24
Theresa			42			28	20		18	-14		-16	0		0	10		
White Plains	18	33	31	28	33	18	7	9	6	3	16	13	5	16	13	11	33	27
Schenectady	7	19	13	23	28	13	-1	-1	-5	-6	9	3	-1	12	6	11	32	25
Throg's Neck	22	32	31	30	34	20	8	8	6	5	16	14	16	17	15	17	32	27
Oneida	8	24	18	30	21	10	-2	-2	0	-4	14	1	-2	16	18	12	30	30
Wilson	16	34	36	23	16	7	-3	3	3	-2	14	5	0	14	15	21	36	
Mohawk	8.1	17.9	16.1	15.8	25	13	-1.7	-4.4	-6.6	-7.9	5	4.8	-2.1	10.1	8.4	12.6	28.2	25.6
NEW JERSEY.																		
Newark	24	34	30	30	35	19	6	8	4	3	12	12	34	16	144	8	35	28
Progress	18	34	28.3	30.3	34.4	19.5	4.2	7.6	3	0	15.3	17.5	1.4	16	6	9.8	36	24
Passaic Valley	25	36	32	31	32	21	94	13	74	6	19	14	7	19	13	13	36	32
Mount Holly	24	35	30	30	36	18	7	94	5	5	19	11	5	184	124	12	37	314
Haddonfield																		
PENNSYLVANIA.																		
Philadelphia	27	344	33	33	37	20	7	9	5	54	19	144	6	18	17	14	36	32
Cannonsburg	22	38	30	29	18	4	-7	3	-4	-10	6	-3	-10	20	8	13	34	28
Pittsburg																		
Oil City																		
Nazareth	20	40	30	32	36	16	2	6	1	0	24	8	1	25	11	9	39	36
Tioga	10	40	30	30	26	10	-4	1	-4	-8	10	0	-12	12	13	18	36	32
Silver Spring	24	35	33	32	32	16	6	7	-6	3	19	10	4	17	14	7	39	30
Fleming	16	29	24	32	23	15	0	0	-2	-6	10	2	-7	18	8	8	35	25
Harrisburg	28	35	34	33	33	18	8	10	6	5	16	12	7	19	18	14	35	32
Connellsville	28		40	28		4	-5		-3	-9		3	-8		12	18		28
Byberry							6		6	3	12	6	4			10		
DELAWARE.																		
Wilmington	25	38	32	31	37	15	6	10	3	0	15	9	3	14	13	8	30	30
MARYLAND.																		
St. Mary's City	34	38	34	34	40	18	10	13	9	7	21	12	9	17	14	18	35	31
Sykesville	32	33	29	29	32	45	2	4	0	0	12	6	-2	15	9	8	32	25
Chestertown	29	37	33	32	37	17	8	10	6	5	17	13	6	17	14	18	35	29
Bladensburg	27	40	35	32	38	19	9	15	7	7	22	13	10	20	15	10	39	31
DIST. OF COLUMBIA.																		
Washington	30	37	34	32	354	15	74	94	6	44	18	14	6	16	164	13	34	32
SOUTH CAROLINA.																		
Beaufort	54	72	65	50	72	46	32	52	36	32	34	34	25	36	28	23	40	38
Hilton Head	57	734	67	55	714	57	37	65	57	44	59	60	32	60	50	29	59	54
FLORIDA.																		
Key West	70	72		70	73		69	74		68	70		67	70		62	64	
KENTUCKY.																		
Louisville	37	48	42	13	12	10	2	10	8	3	15	14	1	27	25	24	44	38
OHIO.																		
College Hill, (Wilson)	34	40	28	2	2	2	-6	-2	-2	-4	10	-2	-2	10	6	30	36	31
College Hill, (Hammitt)	34	45	40	8	4	2	-6	4	-2	-4	10	5	1	20	20	22	31	31
New Lisbon	21	43	31	25	17	4	-2	8	-3	-12	12	-1	-10	18	10	14	38	30
Rockport																		
Welshfield	23	40	35	19	10	0	-6	0	-2	-9	6	-2	-7	15	13	17	32	28
Austinburg	21	38	34	22	13	2.5	-5	1	1.5	-10	6	0	-9	14.5	12	17	32.5	27
Westerville	26	46	36	16	12	-1	-6	7	-4	-5	8	-2	-6	19	14	16		31
Hillsborough	30	40	36	14	9	3	-2	6	0	-4	10	44	-1	20	19	18	374	324
Portsmouth	33	39	37	26	14	11	6	9	7	5	15	11	6	23	24	20	41	35
Bowling Green																		
Cleveland	28	44	42	22	13	6	0	4	5	-3	8	6	3	18	19	224	36	35
East Fairfield	24	36	33	24	12	1	-3	-1	-2	-7	4	1	-7	14	13	16	32	30
Urbana	26	42	36	8	4	-1	-6	5	-3	-5	6	-1	-4	20	16	18	36	30
Kingston	30	40	36	18	7	34	-2	4	2	-2	9	3	0	15	204	194	38	33

Cold in the middle of February, 1864—Continued.

Place.	Feb. 15.			Feb. 16.			Feb. 17.			Feb. 18.			Feb. 19.			Feb. 20.		
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.
OHIO.																		
Kelley's Island.....	31	42	38	18	10	2	4	2	1	2	7	0	2	19	20	22	40	33
Cincinnati.....	33	57	38	11	8	3	15	7	1	14	5	2	23	20	25	44	33	33
Eaton.....	29	46	39	4	4	0	17	4	2	4	2	5	19	19	19	38	32	32
Wooster.....	24	43	30	21	16	2	14	8	2	6	5	2	16	14	13	35	29	29
MICHIGAN.																		
Ypsilanti.....	28	44	31	5	3	4	11	2	4	10	7	4	15	18	22	38	37	37
Lansing.....	17	29	10	13	10	17	20	5	10	5	4	6	16	22	21	28	20	20
Clifton.....	34	39	36	19	12	4	2	8	2	4	12	8	10	20	22	30	39	36
Monroe.....	27	44	32	14	10	1	8	7	3	4	12	6	2	20	22	21	32	35
Pontiac.....	27	44	32	14	10	1	8	7	3	4	12	6	2	20	22	21	32	35
INDIANA.																		
New Albany.....	37	56	43	10	15	9	3	11	7	3	17	11	3	28	24	25	44	27
Muncie.....	28	51	40	2	0	0	9	0	1	7	9	0	6	20	19	23	39	34
Spiceland.....	31	49	40	1	4	0	7	3	2	4	10	5	4	23	19	23	40	35
South Bend.....	30	47	27	2	1	4	3	2	9	10	5	2	4	27	23	25	45	38
Rockville.....	38	50	44	7	14	12	6	13	10	6	21	15	6	29	26	29	45	41
New Harmony.....	30	51	40	0	8	0	7	6	2	5	10	4	4	20	20	23	36	35
New Castle.....	36	42	38	4	8	2	4	10	4	4	10	0	2	30	30	30	32	34
Bloomington.....	36	42	38	4	8	2	4	10	4	4	10	0	2	30	30	30	32	34
ILLINOIS.																		
Waverly.....	31	54	26	4	10	3	6	6	3	2	14	2	4	32	26	26	50	41
Ottawa.....	30	44	7	13	3	20	18	2	4	7	3	7	2	30	23	22	50	41
Tiskilwa.....	24	42	17	10	2	2	11	2	2	0	11	6	6	32	31	26	46	38
Upper Alton.....	29	47	23	5	4	0	7	8	2	0	13	4	3	32	28	29	42	42
Pekin.....	31	40	14	8	3	10	0	4	0	5	4	3	5	4	30	26	50	41
Galesburg.....	31	40	14	8	3	10	0	4	0	5	4	3	5	4	30	26	50	41
Peoria.....	32	44	19	5	5	3	5	6	8	5	14	14	13	34	35	34	51	41
Winnebago.....	28	34	12	14	6	8	16	7	8	7	1	1	2	29	27	26	44	39
Augusta.....	31	46	16	6	6	2	8	1	1	1	11	5	5	35	31	31	52	40
Sandwich.....	31	46	16	6	6	2	8	1	1	1	11	5	5	35	31	31	52	40
Manchester.....	32	54	30	2	9	6	4	5	2	2	18	5	6	32	27	26	50	41
WISCONSIN.																		
Manitowoc.....	29	36	22	10	2	10	16	0	8	12	8	0	6	28	30	26	43	36
Milwaukee.....	33	35	20	13	8	11	16	8	12	10	0	1	3	25	27	26	42	38
Beloit.....	28	33	12	13	7	9	16	6	8	8	2	0	5	4	27	25	26	43
Geneva.....	28	35	20	10	3	9	15	5	9	9	0	4	0	26	25	24	41	37
Madison.....	25	18	12	15	9	12	19	8	13	12	1	6	0	23	22	23	40	37
Odanah.....	12	12	4	12	8	12	12	6	6	16	4	4	10	32	26	32	40	34
Green Bay.....	24	26	13	16	11	18	20	5	15	19	3	7	1	20	23	24	43	35
Embarrass.....	26	27	20	18	12	14	20	2	11	7	8	2	0	26	24	22	48	31
MISSOURI.																		
Laborville.....	28	40	57	0	16	12	4	13	8	2	16	10	8	41	34	33	58	52
Canton.....	26	48	18	4	8	0	6	3	2	2	15	2	6	38	31	30	57	41
Harrisonville.....	36	60	22	12	20	22	10	18	12	10	26	20	12	40	40	28	58	48
St. Louis.....	36	60	22	12	20	22	10	18	12	10	26	20	12	40	40	28	58	48
Athens.....	45	50	33	4	22	30	2	10	10	3	8	10	18	30	40	30	50	50
IOWA.																		
Lyons.....	19	16	6	12	6	9	16	4	4	4	2	4	8	30	28	22	42	37
Iowa Falls.....	30	36	6	8	0	0	12	2	2	2	11	0	8	44	34	30	55	36
Pleasant Plain.....	30	36	6	8	0	0	12	2	2	2	11	0	8	44	34	30	55	36
Muscatine, (Foster).....	30	33	3	9	2	3	11	2	3	0	8	1	6	34	32	31	48	39
Muscatine, (Walton).....	22	23	3	11	4	17	19	1	6	6	7	4	6	37	25	22	48	38
Independence.....	12	10	8	12	0	11	17	0	4	7	10	2	10	36	29	26	40	35
Algona.....	26	28	3	13	5	8	15	4	3	3	22	0	5	38	30	27	46	37
Iowa City.....	30	43	28	6	5	2	9	2	0	1	12	7	7	32	28	29	52	46
Fort Madison.....	25	28	5	14	5	6	12	4	6	6	5	0	5	29	26	25	43	38
Dubuque.....	28	36	8	8	2	0	10	2	4	2	10	0	6	36	32	28	54	38
Mount Pleasant.....	32	22	0	5	8	0	8	6	2	4	10	6	20	40	20	15	55	38
Onawa.....	32	22	0	5	8	0	8	6	2	4	10	6	20	40	20	15	55	38
MINNESOTA.																		
St. Paul.....	17	17	13	19	9	13	20	5	8	12	3	1	11	32	27	23	49	37
Forest City.....	17	17	13	19	9	13	20	5	8	12	3	1	11	32	27	23	49	37
Tamarack.....	17	17	13	19	9	13	20	5	8	12	3	1	11	32	27	23	49	37
New Ulm.....	15	22	13	16	4	15	17	1	2	4	6	1	17	37	27	30	48	35

Cold in the middle of February, 1864—Continued.

Place.	Feb. 15.			Feb. 16.			Feb. 17.			Feb. 18.			Feb. 19.			Feb. 20.		
	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.
KANSAS.																		
Lawrence																		
Fort Riley	30	65	17	9	30	20	10	15	11	9	29	15	16	48	32	32	64	46
Manhattan																		
Olatha		58		2			5	12								20		
NEBRASKA TERRITORY.																		
Fontenelle																		
Bellevue	29	22	3	-2	12	9	-2	10	8	4	12	10	14	46	36	26	57	32
Elkhorn City	27	21	0	-1	11	4	-3	9	6	2	12	9	15	44	34	28	57	39
COLORADO TERRITORY.																		
Montgomery	16	26	20	20	30	22	18	20	6	4	30	22	24	35	32	28	35	25
IDAHO TERRITORY.																		
Fort Laramie	32	20	16	10	29	22	3	10	4	10	37	30	40	61	35	47	63	42
NEW GRENADA.																		
Aspinwall	77.5	79.6	77.5	77.2	80.2		78.7	77.5	80.4	77.9	76.9	80.3	78.7	77.6	80	78.7	78.9	77.3
BERMUDA.																		
Centre Signal Station		*63	†59		*61	†58		*61	†59		*62	†58		*61	†59		*60	†57
WEST INDIES.																		
Sombrero Island	76.9	77.8	73.8	75.2			78.7	74.5	74.9	77.7	75.3	77.2	74.7	75.2	77.3	75.4	73.7	74.6

* Noon.

† Daily mean.

AURORA.

February 1.—Odanah, Wisconsin.—Aurora at 7 p. m. Corona; dark cloud below.

February 1.—Manitowoc, Wisconsin.—Aurora in the evening, very slight.

February 1.—Algona, Iowa.—Aurora from 9 to p. m., with arch, no streamers.

February 2.—Manitowoc, Wisconsin.—Aurora in the evening, very slight.

February 4.—New Albany, Indiana.—Aurora in the north until 11 p. m., not very brilliant, uniformly diffused light, defined by an arch above, reaching within 15° or 20° of the north star.

February 8.—Steuben, Maine.—Aurora at 9 p. m., class Nos. 5 and 6, moderate.

February 8.—Sandwich, Massachusetts.—A simple blush of light behind stratus cloud.

February 8.—Baldwinsville, Massachusetts.—Aurora this evening; first observed about half past seven; low arch dark, but not cloudy; underneath faint; a small cloud in the west part of the arch formed rather suddenly. At ten the aurora was bright, and to all appearance higher, but nearly covered with clouds. During the first half hour there were a few faint streamers. The top of the arch was of an orange color.

February 8.—Algona, Iowa.—Aurora from 9 to 10 p. m., with arch, no streamers.

February 9.—Steuben, Maine.—Aurora at 9 p. m., faint light from horizon up Cassiopeia.

February 9.—Lisbon, Maine.—Aurora north to northwest, quite brilliant.

February 9.—Cornishville, Maine.—Bright northern lights from 7 to 10 p. m.

February 9.—North Littleton, New Hampshire.—Aurora, diffused light; dark clouds accompanying; brightness moderate; general appearance at 9 p. m.

February 9.—North Barnstead, New Hampshire.—Aurora very brilliant at 9 p. m.

February 9.—Baldwinsville, Massachusetts.—Aurora, faint arch, with a few beams.

February 9.—Sandwich, Massachusetts.—A simple blush of light behind stratus cloud.

February 9.—Westfield, Massachusetts.—Aurora in the evening, not bright.

February 9.—South Hartford, New York.—Aurora brilliant in the north and northeast; arch formed, dark cloud below.

February 9.—Passaic Valley, New Jersey.—Aurora, 4th class, a single arch, breadth on the horizon about 68 degrees, height about 9 degrees. Observed it from 7.10 to 10.20 p. m. It did not appear to vary in position, and was most luminous about 8.20. Did not observe any dark segment under the arch.

February 9.—Progress, New Jersey.—Aurora at 10 p. m., arch low.

February 9.—Silver Spring, Pennsylvania.—Faint glow in the north at 9 p. m.

February 9.—Tioga, Pennsylvania.—Aurora from 7 to 10 p. m.

February 9.—New Castle, Indiana.—Very faint aurora from 8 $\frac{3}{4}$ to 9 p. m.; height five degrees.

February 9.—Winnebago, Illinois.—Aurora through the evening, light diffuse, with well-defined arch below; scale of brightness from 2 to 3, variable; brightest period observed 7.15.

February 9.—Pekin, Illinois.—Slight white northern lights at 9 p. m. about ten degrees high, sixty degrees wide; at 11 $\frac{1}{2}$ p. m. about the same as at 9 p. m.

February 9.—Embarrass, Wisconsin.—Aurora at 4 a. m. and in the evening.

February 9.—Iowa Falls, Iowa.—Deep red northern light from 6 to 9 p. m., with a dark cloud along the horizon, the light extending about fifteen degrees in height, and forty degrees in length.

February 9.—Dubuque, Iowa.—Faint aurora at 9 p. m.

February 9.—Pleasant Plain, Iowa.—Small aurora at 9 p. m.

February 10.—Steuben, Maine.—Streamers from horizon half way up to the north star at 8 p. m.; at 9 p. m. only a pale light, one-fourth up to the north star.

February 10.—Cornishville, Maine.—Bright northern lights, from 8 to 9 p. m.

February 10.—North Barnstead, New Hampshire.—In the evening aurora very brilliant.

February 10.—North Littleton, New Hampshire.—Aurora low down in the north, dark clouds accompanying; brightness moderate; general appearance at 9 p. m.

February 10.—Brandon, Vermont.—At 8.30 p. m. light about ten degrees high, with some bright rays, but soon faded.

February 10.—South Hartford, New York.—Aurora, this evening, has lost its brightness since last night; no arch.

February 10.—Silver Spring, Pennsylvania.—Bright glow in the north at 10 p. m.; no arch observed.

February 10.—Tioga, Pennsylvania.—Aurora from 9 to 10 p. m.

February 10.—Urbana, Ohio.—Aurora light pale yellowish, uniform; no sign of corruscations while observed, between 10 and 11 o'clock. Centre of light was due north; it extended each way about 20° , and upwards 25° .

February 10.—Welshfield, Ohio.—Aurora not very bright; arch quite small; from early in the evening till late in the night.

February 10.—Kelley's Island, Ohio.—Bright aurora at 9 p. m.

February 10.—Kingston, Ohio.—A small display of aurora in the evening.

February 10.—Pekin, Illinois.—Slight white northern lights, about fifteen degrees high in N., extending to N.N.E.; hidden to the westward by a small cloud that is increasing fast in volume.

February 12.—Pontiac, Michigan.—Aurora from northeast to northwest eight degrees high; looked like a highly illuminated heavy bank of cloud.

February 29.—Steuben, Maine.—Faint aurora at 9 p. m.

February 29.—North Littleton, New Hampshire.—Aurora at 9 p. m. low down, with clouds; brightness moderate.

February 29.—Passaic Valley, New Jersey.—A faint luminous segment, breadth at the horizon about eighty degrees, height nine or ten degrees; a faint diffuse light above the segment; observed it from 7.15 to 10.20 p. m.

Saint John, New Brunswick.—The aurora was faintly seen on three nights in February.

LIGHTNING.

February 1.—Passaic Valley, New Jersey.—Diffuse lightning in the east, from 8.10 to 8.40 p. m.

February 2.—Hilton Head, South Carolina.—Sheet lightning at 9 p. m. in the southeast; severe gale of wind from the northeast commenced at 11 p. m. and continued all night.

February 2.—Chestertown, Maryland.—Considerable lightning in the southwest.

February 2.—Beaufort, South Carolina.—Lightning in the evening, but no thunder.

February 3.—College Hill, Ohio.—Distant lightning.

February 3.—Hamilton, Bermuda.—During the storm of wind and rain on Wednesday night last, (February 3,) a house on the rising ground above Crawl Point, occupied by Rachael Trott and others, was struck by lightning, and besides being unroofed, the walls were much injured, and the furniture entirely destroyed. The head-board of a bedstead, in which two females were sleeping at the time, was destroyed, and the bed set on fire, and a dog, a fowl and a duck, which were in the house, were killed. The two women alluded to escaped with but a few bruises; one of them had a handkerchief burnt from her head, and a child, which was on the floor near the dog, also escaped injury.—*Royal Gazette.*

February 6.—North Barnstead, New Hampshire.—At 10 p. m. diffuse lightning; no thunder.

February 7.—St. John's, Newfoundland.—Lightning at night, followed by heavy rain.

February 9.—Key West, Florida.—Raining at daylight, with some thunder.

February 16.—Manitowoc, Wisconsin.—At midnight (15-16) a gale sprung up suddenly, with a thunder-storm.

February 22.—Connellsville, Pennsylvania.—A light thunder-shower at 7 p. m.

February 22.—Welshfield, Ohio.—Thunder-storm south of this place at 7 p. m., lasting till $8\frac{1}{2}$ p. m.

February 22.—Fox Creek, Missouri.—Thunder in the northwest.

February 24.—Sandwich, Massachusetts.—A single discharge of electricity at 10 $\frac{1}{4}$ p. m.; bolt seen by several observers to the eastward; thunder heard.

February 26.—Galesburg, Illinois.—Heavy thunder-shower at 11 p. m.; rain at first in large drops; wind southeast. Rain continued the rest of the night; wind not high.

February 26.—Pekin, Illinois.—At 4 p. m. two short rolls of thunder quick succession, in the west. At 5 p. m., one longer roll in the west. At 5 $\frac{1}{4}$ p. m., a loud roll in S. SE., followed by a short shower of sleet, not over five minutes in duration. One mile south of this place sleet fell for ten minutes.

February 26.—Winnebago, Illinois.—Gentle interrupted rain set in at 6.30 p. m., and continued through the night; considerable lightning, with heavy, long-continued thunder about the time of the rain commencing, apparently from a storm in an upper current which crossed this meridian from the W.N.W. about 6.45 p. m.; lightning in the southwest, near the horizon at 9 p. m.

February 26.—Tiskilwa, Illinois.—Thundered a little in the west at 4 p. m.; again at 7 o'clock, with sharp lightning in all directions nearly all night.

February 26.—Harrisonville, Missouri.—Some distant diffuse lightning and very distant thunder southwest about 8 p. m.

February 26.—Beloit, Wisconsin.—In the evening, towards the southwest, it lightened and thundered, and quite a heavy shower passed over—the first of the season.

February 26.—Mount Pleasant, Iowa.—At 3 o'clock p. m., three loud peals of thunder. From 9 to 10 p. m., diffused lightning, without report, at frequent intervals in the eastern horizon. Heard one very loud peal in the night. Raining all the latter part of the night.

February 26.—Dubuque, Iowa.—Thunder, with heavy dark clouds and slight hail, at 4 p. m.

February 26.—Algona, Iowa.—Sheet lightning and distant thunder in the evening; could not determine the direction.

February 26.—Onawa, Iowa.—Frequent flashes of distant diffuse lightning in the south and southeast at 8 o'clock p. m.

February 26.—Fort Riley, Kansas.—Smoky, dreary, so as to obscure the sky all day. Diffused lightning in the south and southwest from 5 to 7 p. m.

February 26.—Elkhorn City, Nebraska.—Air very smoky all day; lightning and distant thunder all the evening.

February 27.—Fleming, Pennsylvania.—At 8 p. m. saw one flash of sharp lightning in the north; has been raining a little all day.

February 27.—Kingston, Ohio.—This morning there was thunder.

February 27.—Urbana, Ohio.—Heavy thunder from 5 to 7 a. m.; at the same time snow was falling; the snow was preceded by light hail, and followed by rain.

February 27.—Westerville, Ohio.—Some thunder and lightning about 9 a. m. to-day, the first of the season here.

February 27.—Newcastle, Indiana.—Afternoon dark and gloomy; 3 to 5 p. m. light showers of fine rain; 7 to 9 p. m. occasional diffuse lightning in the west, northwest, and southwest; intervals from fifteen to thirty minutes.

February 27.—Augusta, Illinois.—At 6.30 a. m., thunder shower with very red lightning.

February 27.—Pekin, Illinois.—At 6.45 a. m., slight rain from southwest, calm; 7.43 a. m., three rolls of thunder in northwest in short succession; 7.50 a. m., a long roll in northwest; a few rolls at intervals to 10 a. m.; rain stopped at 12 m.

February 27.—Harrisonville, Missouri.—Two or three peals of distant thunder and diffuse lightning southwest about 5.15 p. m.

February 27.—Canton, Missouri.—Thunder-storm 3.45 to 6.30 a. m., at the southwest.

February 27.—Thunder was heard at different times through the day, with two or three flashes of zigzag lightning, but no rain of any amount until 6 p. m., when it continued to rain in gentle showers until half past nine o'clock.

February 28.—Bellevue, Nebraska.—Lightning in the north in the night.

TEMPERATURE OF SPRINGS, &c.

February 1.—Haddonfield, New Jersey.—Temperature of water in well, 51°.

February 6.—Williamsburg, Maine.—Temperature of air at one o'clock p. m., 37½°; of spring, 39°; of well, 37°; of pond, (frozen over,) 33½°. This spring, well, and pond are the same as described in the last report, page 57.

February 11.—Passaic Valley, New Jersey.—Temperature of a spring near the Passaic river, and elevated about four feet above the mean height of the river, 46°. Temperature of one, four hundred yards distant and about fifty feet above the river, 44°. Temperature of the atmosphere at the time, 30°.

February 24.—Canton, Missouri.—Temperature of well, twenty feet deep, 49°.

February 24.—Geneva, Wisconsin.—Temperature of well, forty feet deep, 47°.

February 29.—Onawa, Iowa.—Temperature of well at 2 p. m., 40°. The mercury at the same time in the open air stood at 39°. Distance from surface of ground to surface of water, nine feet; depth of water, five feet.

FREEZING OF RIVERS, GROUND, &c.

February 1.—College Hill, Ohio.—Ground frozen ten inches, which is uncommon for this latitude. Ice is reported twelve inches in some places about two miles from the college.

February 2.—Urbana, Ohio.—Ice off the ponds.

February 2-5.—Augusta, Illinois.—Roads muddy.

February 5.—Geneva, Wisconsin.—Illinois river open and navigable to Peoria.

February 8.—Geneva, Wisconsin.—Ice in Geneva lake is eighteen inches thick.

February 15.—Mount Pleasant, Iowa.—Ground almost entirely free from frost. It has not been frozen more than four inches this winter.

February 17.—Sandwich, Massachusetts.—Ponds mostly frozen over at night; 20th, ice on pond seven inches in thickness.

February 17-23.—Portsmouth, Ohio.—Ice formed along the shore of the Ohio river on the 17th, and on the 18th the river was full of large floating cakes, reaching from shore to shore, suspending navigation for five days; 22d and 23d, ice rapidly disappearing.

February 18.—Progress, New Jersey.—River Delaware frozen over last night; river very low at high water for several days; 22d, ice broken up in the river.

February 18.—New Bedford, Massachusetts, river frozen over and harbor to Palmer's island; outer harbor open.

February 18.—Milwaukee, Wisconsin.—Ice on the river measured nineteen inches thick.

February 19.—Mount Pleasant, Iowa.—The ground has frozen to the depth of about fourteen inches.

February 20.—New Bedford, Massachusetts.—The ice nearly frozen enough for crossing by pedestrians above the bridge.

February 20.—Urbana, Ohio.—Ice four inches thick on the ponds.

February 20-24.—Augusta, Illinois.—Roads dry and dusty.

February 22.—Algona, Iowa.—River commencing to break; ice bulging; 24th, ice afloat in the river and water rising; 28th, river frozen over again.

February 24.—New Bedford, Massachusetts.—Ice gone below the bridge, and very little remaining above.

February 24.—Beloit, Wisconsin.—The Rock river opened and became quite free of ice.

February 24.—Muscatine, Iowa.—The last horse and wagon crossed the ice on the river this morning; 25th, ice started and moved a short distance; 26th, ice started and moved a short distance; 27th, ice started and moved a short distance. It is not usual for the ice to start without going out.

February 24.—Elkhorn City, Nebraska.—Elkhorn river open.

February 24.—Bellevue, Nebraska.—The ice broke up on the 24th very gradually, and running the remainder of the month.

February 26.—Onawa, Iowa.—Missouri river free from ice. The ferry-boats between Council Bluffs and Omaha (sixty miles south) commenced their trips on the 24th. The ice was entirely disintegrated by the heat of the sun and disappeared without any rise of water or rain; the thickness of the ice was about twenty inches. Depth of ground frozen, one foot and six inches in the early part of January, where but little snow lay upon the ground; 29th, frost not yet out of the ground.

February 27.—New Bedford, Massachusetts.—Considerable ice formed on the west side of the river, but drifted off shore in the course of the day.

February 29.—New Bedford, Massachusetts.—River free of ice and very little frost in the ground.

February 29.—Seneca Falls, New York.—The winter has passed and not a sleigh has made its appearance in our streets. The ice in Cayuga lake is disappearing. The Seneca river and the Seneca and Cayuga canal is now free from ice in this vicinity.

February 29.—New Lisbon, Ohio.—Muddy; frost all out of the ground.

February 29.—Kelley's Island, Ohio.—During nearly the whole of the month the channel between the island and the peninsula has been obstructed by floating ice, so much so that the mail crossed but three times from the 6th instant to the close of the month. Sandusky bay was open on the 6th instant, and for a few days thereafter it was possible to cross the bay in boats; but on the 17th it was again frozen over, and continued closed until the 28th, when the schooner Zouave succeeded in getting out and reaching the island.

February 29.—Iowa Falls, Iowa.—The ice is partly broken up and gorged in several places, and backed the water up until the river is bank full.

METEORS AND SHOOTING STARS.

February 2.—Embarrass, Wisconsin.—Shooting star seen towards the northeast, going southwest, at 9 p. m.

February 2.—Fort Riley, Kansas.—Shooting star in the northeast at 8.30 p. m.

February 7.—Waverly, Illinois.—A shooting star observed crossing the lower limb of Ursa Major on an angle of about forty-five degrees, disappearing about four degrees above the horizon. Another noticed at 9 o'clock the same evening as it shot across the head of the same constellation at about the same angle, disappearing as it left the constellation.

February 8.—New Castle, Indiana.—At 9 p. m., two meteors ten degrees north of Pleiades, the first faint, the other bright; direction of both to northwest; a few seconds interval.

February 9.—Muscatine, Iowa.—Meteor in the west at 9 p. m.; direction of flight from south to north.

February 13.—Progress, New Jersey.—Two meteors passed from southeast to northwest; the light of one as it passed was brightly reflected from the clouds; out of sight at 40° .

February 13.—Waverly, Illinois.—A bright meteor noticed at 8 p. m. about 1° north of the constellation Leo. Its course nearly on a line vertical to the horizon; it was visible about five or six seconds, and disappeared about 4° above the horizon.

February 15.—Tioga, Pennsylvania.—Meteor in the southwest, 10 p. m.

February 16.—Passaic Valley, New Jersey.—A brilliant meteor at 8.14 p. m. The apparent right ascension was 11h. 12m.; declination 38° when it first appeared; right ascension 13h. 6m.; declination 55° , when it disappeared; color white; a gale from the northwest at the time.

February 18.—South Hartford, New York.—A small meteor observed in the east.

February 23.—Waverly, Illinois.—A large meteor observed at 4 a. m. passing between the observer and the moon. It made a rushing sound like a gigantic rocket, and left a brilliant array of sparks in its track.

February 27.—South Hartford, New York.—A meteor observed falling at ten degrees above the horizon, at 8 p. m., to the south southeast; quite large, about the apparent size of Venus.

February 29.—Mount Pleasant, Iowa.—At thirty-five minutes past eight p. m. observed two shooting stars within a fourth of a minute of each other, both seeming to originate near the star Capella. The first passed to the southeast, nearly directly across the Pleiades. The second passed to the northwest and disappeared in Cassiopeia.

APPEARANCE OF BIRDS, BLOOMING OF TREES, &c.

February 2.—New Albany, Indiana.—Birds singing this morning as if it were spring time; saw the song sparrow for the first time this year.

February 7.—Cannonsburg, Pennsylvania.—Crows arrived.

February 8.—Elkhorn City, Nebraska.—Wild geese seen.

February 10.—Elkhorn City, Nebraska.—Crows seen.

February 11.—Bellevue, Nebraska.—Wild geese going north on the 11th, and occasionally a few since.

February 13.—Galesburg, Illinois.—Wild geese pass to the north.

February 15.—Haddonfield, New Jersey.—*Forsythia viridissima* in bloom in sheltered places.

February 15.—Mount Pleasant, Iowa.—Saw the first geese flying to the southeast. Sugar maple running very rapidly from some maples in my yard.

February 20.—Bristol, Wisconsin.—Quite a number of flocks of wild ducks were seen to-day, course north, flying very high.

February 20.—Augusta, Illinois.—Wild geese go north.

February 22.—Oshtemo, Michigan.—Saw a large flock of cedar birds here to-day.

February 22-24.—Pleasant Plain, Iowa.—Wild geese flying north.

February 22.—Welshfield, Ohio.—Ducks began to arrive and pass on to the north. 23d, 25th, wild geese seen.

February 22.—Algona, Iowa.—Wild geese appear. 23d, more geese. 25th, first appearance of wild ducks.

February 24.—Bristol, Wisconsin.—At 7 a. m. the crowing of prairie roosters is heard in all directions.

February 24.—Iowa Falls, Iowa.—Several flocks of geese passed over to day and three ducks.

February 25.—Iowa Falls, Iowa.—Geese passing; large flocks of small birds passing north.

February 26.—Galesburg, Illinois.—Wild geese pass to the north.

February 27.—New Castle, Indiana.—Forenoon splendid; doves cooing, birds singing, everything betokens the opening of spring. A dry mist, or smoky haze, so dense as to enable one to look at the sun with but little difficulty.

February 27.—Iowa Falls, Iowa.—Large flocks of birds of different kinds appeared; they have not come this soon for the last twelve years.

February 28.—Byberry, Pennsylvania.—Blackbirds (*quisqualis versicolor*) first seen this spring. Buds on *populus tremuloides* and the acers much swollen.

February 28.—Portsmouth, Ohio.—Observed wild geese flying southward this afternoon.

February 28.—Mount Pleasant, Iowa.—Saw the first striped squirrel and heard the first notes of bluebirds to-day.

February 29.—Haddonfield, New Jersey.—A protected silver maple (a variety of *acer dasycarpum*) on the south side of dwelling-house in bloom. This variety always precedes the others.

February 29.—Beaufort, South Carolina.—Not a drop of rain since the 15th of January, and very few clouds, or rather the haziness of the atmosphere prevents many being seen. The atmosphere has presented for the last six weeks the appearance of our northern Indian summer. Peach in blossom, and the willow commenced leafing out three weeks since. Butterflies lend life to the picture.

February 29.—Urbana, Ohio.—Bluebird and meadow lark seen.

February 29.—Iowa Falls, Iowa.—Three large flocks of geese passed north to-day.

February 29.—Onawa, Iowa.—Flocks of wild geese going northward have made their appearance during the last week of the month.

MISCELLANEOUS.

February 16.—The French barque Guipuzcoano, of Bordeaux, from New York, bound to Bordeaux, on the 16th February, in latitude 38° , longitude 65° , encountered a hurricane from E.S.E. which threw her on the beam ends, and kept her in that position for five hours, though every means was resorted to to right her by cutting away the mizzenmast and the fore and main topmasts.—*Newspaper*.

February 20.—Urbana, Ohio.—Snow off the ground, having covered it five days.

February 21-25.—Chestertown, Maryland.—Farmers generally ploughing; ground well settled.

February 26.—The schooner Faith, of Bermuda, on the 26th February, in latitude $32^{\circ} 10'$, longitude 67° , encountered a very severe gale, from SW. to NW., which lasted forty-eight hours, during which carried away the foremast, and had to cut away the mainmast, but succeeded in saving part of the sails.—*Newspaper*.

Lunenburg, Vermont.—This month has been quite winterlike; yet the snow is not deep, perhaps one foot on an average in the fields, and a foot and a half or two feet in the woods.

Pomfret, Connecticut.—We had three cold days in February. The greater

part of the month was mild and considerably above the mean ; but little snow or rain.

Newark, New Jersey.—The most remarkable characteristic of the month was its little humidity as compared with other Februarys, for there was not one of its immediate predecessors that did not exceed it in the amount of water reaching the surface in rain and snow. There were several sudden and great changes in the temperature, a few days being very cold, but, as a whole, the month was warmer than fourteen of the last twenty Februarys. The mean temperature of the winter now closed was 31.34° , and the quantity of water that fell 7.080 inches, being a less quantity than has fallen any winter, with the exception of those of 1851-'52 and 1853-'54, since these observations commenced.

February 29.—Garrison's, New York.—The weather during February has been somewhat remarkable for its mild and uniform character and the prevalence of westerly winds, and the frost is almost entirely out of the earth, and the ice in the Hudson river of very little importance.

February 29.—Brandon, Vermont.—No sleighing through the month.

Middlebury, Vermont.—This February had a higher mean temperature than the same month in any year since 1857. The lowest temperature in February in the past nine years was -28° , on the 8th of February, 1861.

February 29.—Portsmouth, Ohio.—From all the information I can gather in parts of four counties around here, I find the peaches are killed, and in many instances the trees. Wheat looks very bad.

College Hill, Ohio.—Peach trees reported by farmers universally in this region nearly all killed. I doubt it, except in cases of small trees and the small branches of trees in places much exposed.—*Professor Wilson.*

Rochester, New York.—Mean temperature of the month, 28.46° ; average of February for twenty-eight years, 26.33° ; this month nearly two degrees above the general average.—*Rev. C. Dewey, D. D.*

Skating at Shanghai.—A letter from Shanghai states that during the past winter there was skating there on three different occasions, it being the first time for several years. The thermometer would stand at 50° at noon, and fall at night to 18° .—*Newspaper.*

Drought in Buenos Ayres.—A letter dated Buenos Ayres, February 12, says: The drought of which I wrote you before has not yet ceased, though there have been, in a month, two genial rains. The ground is baked hard, and in some places cracked open. The surface is like burnt ground. When the winds prevail, storms of dust sweep over the plains, almost depriving the remaining animals of life. Dust-storms, in which houses are unroofed, trees blown down, and thousands of sheep driven to parts unknown, have occurred in several places. Some districts are almost deserted by the search after better pastures leagues and leagues away. Over hundreds of miles of territory on this frontier the pastoral life has resumed its patriarchal forms, and the shepherds dwell in tents, feed their flocks on public lands, watch them like sentinels in turn through the night, and, for convenience, dig for themselves wells in their new location. The loss to the country this year may be computed by millions. Large quantities of wool are still going forward to the United States.—*Newspaper.*

THE DROUGHT IN CALIFORNIA.

From the Colusa Sun, December 19, 1863.—We have had during this week a glorious rain, and the weather has set in warm and fine, and already the fields are getting green. This will set the farmers to ploughing in earnest, and large crops will be planted, but we would still say to the farmers that they must not forget to make ready to irrigate their lands, as this will make a certainty of crops.

California Farmer, San Francisco, December 25.—We have been visited during Monday and Wednesday of this week with good soaking rains, which will greatly benefit farmers, miners, and all others in the producing line. Thursday morning the weather cleared up sufficiently to indicate a pleasant Christmas eve.

Tuolumne Courier, February 2, 1864.—The present winter is undoubtedly the driest since 1851-'52. The rains so far this year have not penetrated the earth more than eighteen inches, and mining and farming prospects for next summer look rather discouraging. We may have plenty yet, but the grain crop will soon be past salvation, if it is not already. Almond trees here have been in bloom for two weeks; all the peach trees are in flower, and a sharp frost now would ruin the crop. A few pear trees are also in blossom, and plums are preparing to give Jack Frost a fair chance for mischief.

Contra Costa Gazette, February 6.—As our last issue went to press we noticed that rain had commenced falling. It continued, but very sparingly, on Saturday and Sunday, and then ceased altogether. The grass and the grain already in the ground have undoubtedly received much benefit, but the moisture penetrated only a short distance below the surface, and further ploughing is still out of the question at present.

California Farmer, February 12.—A correspondent at Lower Lake writes to us, relative to the season and crops in that section: The weather is fine here now, and in fact has been all the time this winter. We have had but little rain; the creeks and springs of water are very low for the time of year. The little rain we have had has kept the land in the best order for the plough, and I never saw a better season for ploughing than this has been. Stock is getting its living now, which is quite a contrast to two years ago, when cattle were dying by the hundreds.

California Farmer, February 19.—The winter of 1851-'52 will be remembered by Sacramentans as a remarkably dry winter—no rain till late; and that about the first of March came the rains and melted snows, and the levee gave way, and Sacramento was flooded. This is the driest season so far since 1851-'52, and the same thing may occur this year.

California Farmer, February 26.—The long continued warm and dry weather awakens a spirit of inquiry about the growing crops, and information is asked for from the different sections of the State as to its effect upon grain, fruit trees, &c.

The same paper says news had been received of refreshing rains of thirty-six hours' duration at Marysville and at St. Helena and vicinity, and adds "we are receiving cheering accounts of the crops from all quarters, and no complaint of drought from any source that causes alarm."

California Farmer, March 11.—The long continued dry weather is creating great anxiety, and with many persons alarm, and it is evident that speculation will be rampant, but we can see no cause for any alarm. The wheat crop now on hand is ample for 1864. In addition to this, the present rapid rise in breadstuffs must necessarily bring down large quantities from Oregon. Should California, by any circumstance, demand grain, Oregon can give her an ample supply; so that with her excess of crop she can join ours, and this will afford us food for two years. In this statement we, of course, include all kinds of breadstuffs.

FEBRUARY.

The following tables show, first, the temperature and the amount of rain falling in the month of February, 1864, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this February compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates pre-fixed,) the mean temperature, and amount of rain, (in inches and tenths,) for February, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

TEMPERATURE AND RAIN OF FEBRUARY, 1864.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
West Waterville.....	Kennebec	B. F. Wilbur	7	o 46	19	o —21	o 25.6	In. 1.60
Cornishville	York	G. W. Guptill	23	41	17	—11	24.6	1.28
Lisbon	Androscoggin	Asa P. Moore						1.75
Steuben	do	J. D. Parker	7, 23, 25	42	19	—16	24.7	1.70
NEW HAMPSHIRE.								
North Littleton	Grafton	Rufus Smith	23	38	19	—27	15.3	1.63
Littleton	do	Robert C. Whiting	23	46	19	—28	22.5	1.35
North Barnstead	Belknap	Charles H. Pitman	5	46	17	—11	25.6	.....
Stratford	Coos	Branch Brown	23	42	19	—25	20.2	1.17
Claremont	Sullivan	Arthur Chase	24	48	19	—17	26.0	1.75
VERMONT.								
Lunenburg	Essex	H. A. Cutting	24	44	18, 19	—25	20.6	1.89
Brandon	Rutland	David Buckland	5, 23, 24	46	18	—21	27.0	0.92
Rutland	do	S. O. Mead	23	60	18	—8	30.6	.....
Calais	Washington	Jas. K. Tobey	24	43	18	—20	20.1	.....
Burlington	Chittenden	McK. Petty	24	46	18	—13	23.9	1.90
Craftsbury	Orleans	James A. Paddock	23, 24	47	18	—18	20.9	1.60
Middlebury	Addison	H. A. Sheldon	24	52	18	—12	27.7	0.90
MASSACHUSETTS.								
New Bedford	Bristol	Samuel Rodmans	23	51	18	—0	32.5	1.42
Amherst	Hampshire	Prof. E. S. Snell	24	47	18	—4	42.5	1.12
Sandwich	Barnstable	N. Barrows, M.D.	6	51	18	—2	31.4	1.01
Springfield	Hampden	J. Weatherhead	5, 23	52	18	—6	28.4	1.22
Westfield	do	Rev. Emerson Davis	5	47	18	—3	28.5	1.49
Baldwinsville	Worcester	Rev. E. Dewhurst	24	45	19	—16	25.8	0.67
Mendon	do	John G. Metcalf	24	47	18	—6	28.2	.....
Topsheld	Essex	John H. Caldwell	23	48	18	—6	30.5	0.95
Williamstown	Berkshire	Prof. A. Hopkins	23	45	18	—10	26.4	1.52
CONNECTICUT.								
New Haven	New Haven	D. C. Leavenworth	5, 6, 24	48	18	—2	31.0	.....
Pomfret	Windham	Rev. D. Hunt	23	48	18	—6	27.3	1.00
NEW YORK.								
Rochester	Monroe	Prof. C. Dewey	23	54	18, 19	—2	28.5	1.18
Do	do	M. M. Mathews, M. D.	23	54	17	0	28.9	1.18
Throg's Neck	Westchester	Frs. M. Rogers	24	54	18	5	32.4	1.11

Temperature and rain of February, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
White Plains	Westchester	Oliver R. Willis	23	54	18	3	32.6	1.1.
Jamestown	Chautauqua	Rev. S. W. Roe, M.D.	23	48	17	-14	24.7	2.70
Fredonia	do	Dan'l J. Pratt, A. M.	23	54	17	-4	27.8	2.19
Buffalo	Erie	William Ives	22, 23	45	17	-4	27.0	1.48
Oswego	Oswego	W. S. Malcolm	24	49	18	-4	27.7	3.01
Fishkill Landing	Dutchess	Wm. H. Denning	24, 25	49	17	5	31.0	0.95
New York	New York	Prof. O. W. Morris	6	59	17, 18	8	36.8	2.04
Oneida	Madison	S. Spooner, M. D.	25, 28	44	11, 17	-12	27.2	.....
South Hartford	Washington	G. M. Ingalsbe	23	50	18	-15	29.1	1.75
Seneca Falls	Seneca	Philo Cowing	23	54	17, 18	0	30.3	.....
Gouverneur	St. Lawrence	Cyrus H. Russell	23	48	18	-27	23.7	1.61
Schenectady	Schenectady	Robert M. Fuller	23	49	18	-6	26.8	.....
Wilson	Niagara	E. S. Holmes, D.D.S.	23	57	17	-3	27.8	0.81
Auburn	Cayuga	John B. Dill	23	52	17	-8	27.3	.....
Skaneateles	Onondaga	W. M. Beauchamp	23	49	17	-5	28.9	.....
Garrison's	Putnam	Thos. B. Arden	23	54	18	1	31.0	1.22
NEW JERSEY.								
Haddonfield	Camden	James S. Lippencott	23	56	17, 18, 19	5	33.8	0.02
Newark	Essex	W. A. Whitehead	23	56	18	2	32.9	0.82
Passaic Valley	Passaic	Wm. Brooks	23, 28	55	18	0	30.2	0.63
Progress	Burlington	Thomas J. Beans	23	58	18	3	32.2	0.56
Mount Holly	do	M. J. Rhees, M.D.	28	60	18	6	34.7	.....
PENNSYLVANIA.								
Nazareth	Northampton	L. E. Ricksecker	23	58	18	0	32.5	.....
Connellsville	Fayette	John Taylor	23	58	18	-9	29.8	.....
Fleming	Center	Samuel Brugger	23	60	19	-7	29.6	0.84
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	28	57	17, 18	5	35.3	0.70
Tioga	Tioga	E. T. Bentley	23	57	19	-12	29.0	.....
Cannonsburg	Washington	Rev. W. Smith, D. D.	23	56	18, 19	-10	28.8	1.36
MARYLAND.								
Sykesville	Carroll	Miss H. M. Baer	28	63	17, 18	0	31.5	0.55
Chestertown	Kent	Prof. J. R. Dutton	28	62	18	5	36.2	0.37
St. Mary's city	St. Mary's	Rev. Jas. Stephenson	23	57	18	7	37.0	1.20
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	28	57	18	5	36.3	0.36
SOUTH CAROLINA.								
Beaufort	Beaufort	M. M. Marsh, M. D.	23, 24	80	20	23	52.0	.....
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	23	70	19	1	37.0	1.72
OHIO.								
East Fairfield	Columbiana	S. B. McMillan	23	55	18, 19	-7	29.2	1.32
New Lisbon	do	Josiah F. Benner	23	63	18	-12	29.6	1.34
College Hill	Hamilton	J. H. Wilson	27	62	17	-6	31.1	1.45
Do	do	John W. Hammitt	23	65	17	-6	32.5	1.10
Westerville	Franklin	Pf. H. A. Thompson	23	62	17, 19	-6	31.0	.....
Kingston	Ross	Prof. J. Haywood	23	65	17, 18	-2	32.9	1.52
Portsmouth	Scioto	L. Engelbrecht	23	63	18	5	36.2	3.10
Welshfield	Geauga	B. F. Abell, A. M.	23	56	18	-9	28.2	3.05
Hillsborough	Highland	J. McD. Mathews	23	63	18	-4	32.7	1.74
Wooster	Wayne	Martin Winger	23	61	19	-7	27.2	0.15
Kelley's island	Erie	Geo. C. Huntington	23	51	17	-4	30.0	0.64
Urbana	Champaign	Prof. M. G. Williams	23	62	17	-6	30.3	0.55
Cleveland	Cuyahoga	Mr. and Mrs. Hyde	23	61	18	-3	31.9	0.53

Temperature and rain of February, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
OHIO.								
Eaton	Preble	Ollittipa Larsh	23	59	17	— 7	31.0	0.53
Cincinnati	Hamilton	G. W. Harper	22	60	17	— 5	34.6	0.99
MICHIGAN.								
Clifton	Keweenaw	Wm. Van Orden, jr.	23	49	17	—20	20.4	1.80
Monroe City	Monroe	Miss F. E. Whelpley	22	55	17	— 2	31.3	1.05
Lansing	Ingham	Prof. R. C. Kedzie	23	50	17	—11	27.3	0.31
Pontiac	Oakland	Jas. A. Weeks	23	52	17	— 8	27.4	.....
INDIANA.								
New Castle	Henry	Thomas B. Redding	27	60	17	— 7	31.0	1.13
Muncie	Delaware	E. J. Rice	27	62	17	— 9	30.9	2.20
New Albany	Floyd	Dr. E. S. Crozier	23	72	17, 18, 19	— 3	36.4	1.47
Spiceland	Henry	William Dawson	27	59	17	— 7	30.1	1.32
South Bend	St. Joseph	Reuben Burroughs	23	51	18	—10	28.7	.....
Indianapolis	Marion	Royal Mahew					32.3	1.19
Bloomington	Parke	Wm. H. Hobbs	23, 24	48	16, 17, 18	— 4	.....	1.30
ILLINOIS.								
Pekin	Tazewell	J. H. Riblett	22, 23	58	17	— 7	31.1	0.46
Waverley	Morgan	Timothy Dudley	22	64	17	— 6	32.5	0.70
Peoria	Peoria	Frederick Brendel	22, 23	59	16, 17	— 5	33.0	0.41
Galesburg	Knox	Prof. W. Livingston	22	57	17	—10	28.2	0.56
Tishkila	Bureau	Verry Aldrich	24	58	17	—11	29.5	1.26
Manchester	Scott	Dr. John and Miss E. Grant	11, 22, 23	60	17	— 4	33.2	0.87
Ottawa	La Salle	Emily H. Merwin	24	56	16	—20	26.3	1.56
Augusta	Hancock	S. B. Mead	22	63	17	— 8	31.4	0.58
Winnebago	Winnebago	James W. Tolman	22	50	17	—16	24.5	.....
MISSOURI.								
Canton	Lewis	George P. Ray	22	65	17	— 6	31.7	0.46
Harrisonville	Cass	John Christian	15	60	17, 18	—10	.....	.....
Fox Creek	St. Louis	Wm. Muir	22, 24	68	16	0	38.5	1.30
Athens	Clark	J. T. Caldwell	24	75	18	— 3	40.0	0.25
WISCONSIN.								
Odanah	Ashland	Edwin Ellis	22, 23	46	18	—16	23.1	0.40
Milwaukee	Milwaukee	I. A. Lapham, LL.D.	23, 24	48	17	—18	.....	0.42
Green Bay	Brown	Fred'k Deckner	23	51	17	—20	23.2	0.82
Manitowoc	Manitowoc	Jacob Lüps	23	48	17	—16	26.0	1.52
Beloit	Rock	H. D. Porter	22, 23	48	17	—16	24.5	1.20
Embarrass	Waupaca	J. Everett Breed	22	52	17	—20	22.9	2.45
Madison	Dane	Prof. J. W. Sterling	21	50	17	—19	22.0	2.10
IOWA.								
Mount Pleasant	Henry	E. L. and Miss Briggs	22	61	17	—10	29.3	0.41
Muscatine	Muscatine	Suel Foster (?)	23	53	17	—11	26.7	0.25
Iowa Falls	Hardin	N. Townsend	22	49	15	— 6	25.6	0.43
Algona	Kossuth	Dr. and Miss McCoy	22, 24	48	17	—17	24.3	.....
Independence	Buchanan	A. C. Wheaton	22	50	17	—19	25.7	0.81
Lyons	Clinton	P. J. Farnsworth (?)	22	58	16, 17	—10	24.6	0.25
Onawa	Monona	Rich. Stebbins, M. D.	22	65	17	— 8	28.9	.....
Dubuque	Dubuque	Asa Horr, M. D.	23	48	16	—14	21.4	0.74
Fort Madison	Lee	Daniel McCready	22	60	17	— 9	31.9	0.41
Iowa City	Johnson	T. S. Parvin, A. M.	22, 23	56	17	—15	27.4	0.68
MINNESOTA.								
New Ulm	Brown	Charles Roos	22	50	16	—16	23.5	.....
St. Paul	Ramsey	Rev. A. B. Paterson	22	50	17	—20	21.6	00.0

Temperature and rain of February, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEBRASKA.								
Elkhorn City	Washington	Miss A. M. J. Bowen.	22	65	17	— 3	30.8	.....
Bellevue	Sarpy	Rev. Wm. Hamilton.	22	66	16, 17	— 2	31.6	.....
KANSAS.								
Fort Riley	Dayis	Elford E. Lee	24	77	16	9	39.6	.....
COLORADO.								
Montgomery	Park	James Leuttrell	12	47	28	— 4	25.0	1.00

Table showing the average temperature and fall of rain (in inches and tenths) for the month of February, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1864.	
		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.		Mean, ther.	
		Mean.	rain.	Mean.	rain.	Mean.	rain.	Mean.	rain.	Mean.	rain.	Mean.	rain.	Mean.	rain.
Maine	5	Deg. 16.2	In. 7.25	Deg. 17.2	In. 1.94	Deg. 26.4	In. 7.88	Deg. 15.4	In. 2.04	Deg. 21.9	In. 3.73	Deg. 19.4	In. 4.57	Deg. 27.4	In. 1.58
New Hampshire	4	18.8	5.64	17.5	1.53	28.8	2.52	16.6	1.60	23.7	2.26	21.1	2.71	21.9	1.72
Vermont	4	17.7	0.98	14.9	0.94	27.8	3.04	14.1	1.20	22.8	1.54	19.5	1.54	24.4	1.44
Massachusetts	12	21.2	3.38	20.8	1.09	32.6	2.51	22.4	1.68	28.3	4.17	25.1	2.57	30.5	1.18
Rhode Island	1	22.1	4.05	18.7	0.80	32.7	3.26	24.5	2.80	36.6	1.85	26.9	2.55	.....	.....
Connecticut	4	19.7	4.10	23.0	1.32	32.8	1.45	23.3	2.16	29.3	3.80	25.6	2.57	29.2	1.00
New York	18	18.0	1.83	15.6	8.82	32.7	2.45	21.5	2.00	29.8	2.41	25.5	3.50	28.9	1.63
New Jersey	4	25.1	3.26	23.7	0.84	37.1	1.77	26.4	2.51	33.4	3.48	29.1	2.37	32.8	0.51
Pennsylvania	19	23.0	2.59	22.2	1.14	36.4	1.54	25.6	1.90	33.6	3.13	28.2	2.06	30.8	0.97
Maryland	5	26.2	2.07	26.1	0.84	40.4	0.68	27.7	1.64	36.9	3.49	31.5	1.74	34.9	0.71
District of Columbia	1	27.0	.....	27.0	0.64	42.0	0.65	31.0	1.67	39.4	3.54	33.3	1.30	36.3	0.36
South Carolina	6	44.2	1.46	45.9	2.06	57.4	1.01	46.3	6.60	51.4	3.92	49.0	3.01	52.0	.....
Tennessee	2	35.4	1.30	33.3	2.90	52.5	2.65	36.8	3.21	46.7	7.66	40.9	3.54	.....	.....
Kentucky	4	30.5	0.86	28.2	2.08	46.5	3.14	30.2	3.06	40.0	7.56	35.1	3.34	37.0	1.72
Ohio	19	23.7	1.70	23.2	1.92	39.8	2.50	24.5	2.30	34.0	4.21	29.0	2.53	31.0	1.31
Michigan	7	17.0	1.59	14.2	1.17	27.6	4.26	19.0	2.17	27.7	1.69	21.1	2.18	26.6	1.05
Indiana	4	27.6	0.75	24.2	0.77	41.9	4.60	25.8	2.00	37.0	5.16	31.3	2.66	31.6	1.44
Illinois	13	22.7	0.82	21.3	1.48	34.0	5.18	19.6	1.76	29.7	2.10	25.5	2.27	30.0	0.80
Missouri	2	29.9	0.63	26.0	3.64	42.1	6.29	29.2	1.81	36.9	5.35	32.8	3.54	36.7	0.67
Wisconsin	9	13.1	1.23	15.4	0.40	25.8	2.77	16.0	0.89	23.3	1.44	18.7	1.35	23.6	1.27
Iowa	8	18.3	1.71	16.1	1.33	27.2	5.30	16.5	1.64	26.4	1.92	20.9	2.38	26.6	0.47
Minnesota	3	7.7	.....	12.1	.....	10.7	3.30	10.1	0.70	14.6	0.58	11.0	1.33	22.5	.....
Nebraska Territory	3	.....	.....	.....	.....	.....	.....	17.3	0.80	23.8	0.68	20.5	0.74	31.2	.....
Kansas	3	.....	.....	.....	.....	29.6	3.60	25.2	0.51	34.6	0.42	29.8	1.51	39.6	.....
California	2	52.7	2.67	52.2	0.44	50.4	4.87	53.9	2.01	51.0	4.58	52.0	2.91	.....	.....

The following tables show, first, the temperature and the amount of rain falling in the month of March, and then the comparison between the weather for that month of this year and of the same month in five years previous. An examination of the last column in the last table will show how this March compares with the average of other years.

Table showing the highest and lowest range of the thermometer, (with dates pre fixed,) the mean temperature, and amount of rain, (in inches and tenths,) for March, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

TEMPERATURE AND RAIN OF MARCH, 1864.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornishville	York	G. W. Guptill	27	51	21	10	30.4	7.35
West Waterville...	Kennebec	B. F. Wilbur	5, 27	54	22	10	33.2	3.20
Lisbon	Androscoggin	Asa P. Moore						4.88
Stenben	Washington	J. D. Parker	12	47	23	7	29.7	5.16
Augusta	Kennebec	Geo. E. Brackett	5, 12	49	4	11	36.1	.....
Williamsburg	Piscataquis	Edwin Pitman	27	48	21	0	28.5	3.00
Foxcroft	do	Mark Pitman	27	52	22	11	32.4	.....
NEW HAMPSHIRE.								
North Littleton	Grafton	Rufus Smith	25	43	4	—4	23.2	1.97
Claremont	Sullivan	Arthur Chase	5	52	21	10	32.0	4.80
Littleton	Grafton	Robert C. Whiting	29	52	21	0	35.1	1.50
VERMONT.								
Middlebury	Addison	H. A. Sheldon (?)	5	63	21	6	32.9	1.06
Burlington	Chittenden	McK. Petty	5	53	21	8	30.0	2.20
Craftsbury	Orleans	James A. Paddock	5	48	21	3	27.4	1.70
Lunenburg	Essex	Hiram A. Cutting	4, 5	53	21	0	31.2	3.93
Brandon	Rutland	David Buckland	5	60	21	8	32.5	3.22
Rutland	do	Stephen O. Mead	28	72	21	4	36.4	1.70
MASSACHUSETTS.								
New Bedford	Bristol	Samuel Rodman	12	57	22	19	37.2	5.36
Mendon	Worcester	John G. Metcalf	25	58	3, 21	17	34.7	2.95
Amherst	Hampshire	Prof. E. S. Snell	28	54	21, 22	15	34.4	2.58
Topsfield	Essex	John H. Caldwell	5, 12, 13	52	22	16	36.3	4.30
Sandwich	Barnstable	N. Barrows, M. D	12	54	21	19	35.9	6.75
Springfield	Hampden	J. Weatherhead	28	60	22	10	26.2	2.25
Williamstown	Berkshire	Prof. A. Hopkins	5	54	22	4	30.6	2.24
Baldwinsville	Worcester	Rev. E. Dewhurst	25	52	22	9	31.2	.....
Westfield	Hampden	Rev. E. Davis	25	53	22	15	34.5	3.66
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	25	53	22	15	33.8	2.12
Middletown	Middlesex	Prof. Jno. Johnston	28	59	22	15	35.4	2.06
New Haven	New Haven	D. C. Leavenworth	12, 28	55	22	17	39.3	.....
NEW YORK.								
Gouverneur	St. Lawrence	C. H. R sell	11	54	21	2	29.0	2.47
Jamestown	Chautauqua	Rev. S. W. Roe, M. D.	4	60	21, 22	2	28.9	1.20

Temperature and rain of March, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Skaneateles.....	Onondaga.....	W. M. Beauchamp..	4	54	21	3	29.9	.....
New York.....	New York.....	Prof. O. W. Morris..	5	58	21	22	40.7	2.15
Fishkill Landing....	Dutchess.....	Wm. H. Denning....	5	53	21, 22	17	36.8	3.70
Garrison's.....	Putnam.....	Thos. B. Arden.....	25	54	21, 22	17	36.0	3.28
South Hartford.....	Washington.....	G. M. Ingalsbee.....	5	62	21	5	34.7	2.95
Throg's Neck.....	Westchester.....	Francis Morris (1)...	12	55	21	20	38.2	2.75
Schenectady.....	Schenectady.....	Robert M. Fuller....	27	53	21	11	31.8	.....
Rochester.....	Monroe.....	Prof. C. Dewey.....	4	57	21	7	31.9	3.44
Wilson Village.....	Niagara.....	E. S. Holmes.....	4	54	20, 21	10	31.0	2.50
Auburn.....	Cayuga.....	John B. Dill.....	4	60	21	6	32.0	.....
NEW JERSEY.								
Haddonfield.....	Camden.....	Jas. S. Lippencott...	13	61	22, 23	22	39.3	6.03
Newark.....	Essex.....	W. A. Whitehead....	13	56	22	18	37.4	3.15
Passaic Valley.....	Passaic.....	William Brooks.....	13	54	21	16	35.8	3.68
Progress.....	Burlington.....	Thos. J. Beans.....	13	58	21, 22	20	37.1	4.61
Burlington.....	do.....	John C. Deacon.....	13	60	22	17	36.0	3.80
Greenwich.....	Cumberland.....	C. Sheppard.....	28	60	23	22	39.4	2.00
PENNSYLVANIA.								
Canonsburg.....	Washington.....	Rev. W. Smith, D.D..	11	56	21	6	32.9	3.04
Harrisburg.....	Dauphin.....	John Heiseley, M.D..	28	54	21, 22	22	38.1	4.55
.....	Tioga.....	E. T. Bentley.....	27	60	21	2	33.6	6.30
Silver Spring.....	Lancaster.....	H. G. Bruckhart.....	12	56	21	18	36.0	.....
Nazareth.....	Northampton.....	L. E. Ricksecker....	28	62	21	16	37.7	.....
Fleming.....	Center.....	Samuel Brugger.....	4	59	21	10	33.6	4.61
Philadelphia.....	Philadelphia.....	Pf. J. A. Kirkpatrick.	13	59	21, 23	22	39.5	5.24
MARYLAND.								
Sykesville.....	Carroll.....	Miss Harriott M. Baer.	13, 28	56	3	16	34.0	4.25
Chestertown.....	Kent.....	Prof. J. R. Dutton..	12	56	23	23	39.2	2.51
St. Mary's City.....	St. Mary's.....	Rev. J. Stephenson..	13	60	23	25	40.7	3.81
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Inst'n..	12, 13	55	21	22	40.3	4.43
KENTUCKY.								
Louisville.....	Jefferson.....	Mrs. L. Young.....	27	70	2	14	43.6	2.35
OHIO.								
New Lisbon.....	Columbiana.....	J. F. Benner.....	11	63	21	6	33.7	2.96
Austinburg.....	Ashtabula.....	Dole & Griffing.....	11, 28	58	23	6	31.2	3.80
Urbana.....	Champaign.....	Prof. M. G. Williams.	28	69	21	9	35.7	2.33
Wooster.....	Wayne.....	Martin Winger.....	27	61	21	10	.....	.....
Portsmouth.....	Scioto.....	L. Engelbrecht.....	28	67	2	13	40.1	2.85
College Hill.....	Hamilton.....	L. H. Wilson.....	28	62	21	10	38.6	0.90
Do.....	do.....	John W. Hammitt..	28	66	21	10	38.3	1.83
East Fairfield.....	Columbiana.....	S. B. McMillan.....	11, 28	56	21	6	33.1	2.70
Welshfield.....	Geauga.....	B. F. Abell, A.M....	27, 28	58	19, 20	11	32.5	3.49
Kelley's Island.....	Erie.....	Geo. C. Huntington..	27	60	21	10	34.0	2.11
Cincinnati.....	Hamilton.....	G. W. Harper.....	28	70	21	13	39.0	.....
Hillsborough.....	Highland.....	J. McD. Mathews....	28	65.5	21	9.5	40.0	2.00
Eaton.....	Preble.....	Miss Ollitippa Larsh.	27	64	21	6	36.0	2.18
Kingston.....	Ross.....	Prof. Jno. Haywood..	28	66	21	13	37.7	3.25
Cleveland.....	Cuyahoga.....	G. A. Hyde.....	28	62	21	14.5	35.9	1.90
Westerville.....	Franklin.....	Pf. H. A. Thompson..	28	63	21	15	35.0	1.00
MICHIGAN.								
Monroe City.....	Monroe.....	Florence E. Whelpley	4, 27	56	20	9	34.9	2.42
Lansing.....	Ingham.....	Prof. R. C. Kedzie..	28	59	23	2	31.8	1.96

Temperature and rain of March, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
INDIANA.								
Indianapolis	Marion	R. Mayhew	27	69	21	10	37.8	2.77
New Albany	Floyd	Dr. E. S. Crozier	10	73	21	18	40.3	1.59
Muncie	Delaware	E. J. Rice	27	68	21	— 5	35.4	2.40
Spiceland	Henry	William Dawson	28	65	21	11	36.3	3.20
New Castle	do	T. B. Redding, A.M.	28	68	21	6	36.6	.85
South Bend	St. Joseph	Reuben Burroughs	27	62	20	10	34.1	4.50
ILLINOIS.								
Peoria	Peoria	Frederick Brendel	27	68	20	14	38.8	2.20
Augusta	Hancock	S. B. Mead	27	65	20	11	35.1	2.26
Galesburg	Knox	Prof. W. Livingston	26	64	20	5	31.2	3.14
Ottawa	La Salle	Emily H. Merwin	26	62	20	10	34.1	2.85
Waverly	Morgan	Timothy Dudley	10	69	5	12	36.9	0.80
Winnebago Depot	Winnebago	J. W. Tolman	3	57	20	3	31.4	2.71
New Harmony	Posey	Jno. Chappellsmith	9, 10	70	16	17	40.6	0.97
Tiskilwa	Bureau	Verry Aldrich	26	60	21	5	33.4	.....
Manchester	Scott	Dr. John Grant	27	72	21	12	37.5	2.00
Highland	Madison	A. F. Bandelier	9	92	12	57	73.3	2.24
MISSOURI.								
Harrisonville	Cass	Dr. John Christian	26, 27	72	21	18	41.3	0.88
Canton	Lewis	George P. Ray	27	71	21	8	34.6	1.83
Athens	Clark	J. T. Caldwell	25	70	20	12	46.3	.....
Laborville	St. Louis	William Muir	27	74	21	20	41.1	2.30
WISCONSIN.								
Milwaukee	Milwaukee	I. A. Lapham, LL.D.	3	52	20	— 1	30.7	2.52
Green Bay	Brown	Frederick Deckner	25	54	20	— 5	27.4	1.04
Beloit	Rock	Henry D. Porter	3, 24, 26	56	20	1	31.4	1.35
Manitowoc	Manitowoc	Jacob Lüps	25	45	20	0	30.5	1.73
Embarrass	Waupaca	J. Everett Breed	25	56	20, 21	— 9	36.6	1.21
Madison	Dane	Prof. J. W. Sterling	25	52	20	— 1	30.2	.....
Bloomfield	Walworth	Wm. H. Whiting	26	54	20	2	30.7	.....
IOWA.								
Mount Pleasant	Henry	Rv. E. L. & Miss Briggs	3, 27	60	20	5	33.7	2.14
Muscatine	Muscatine	I. P. Walton	26	59	21	3	33.2	2.56
Independence	Buchanan	A. C. Wheaton	3	60	20	4	32.6	2.20
Lyons	Clinton	P. J. Farnsworth, M.D.	25, 26	58	20, 21	8	34.2	3.50
Iowa Falls	Hardin	Nathan Townsend	3	59	20	— 1	29.1	1.39
Iowa City	Johnson	Theo. S. Parvin, A.M.	24, 26	60	19	5	32.6	5.64
Onawa	Monona	Richard Stebbins	27	66	22	— 6	31.7	.....
Pleasant Plain	Jefferson	T. McConnel	26	66	20	— 4	34.3	2.80
Fort Madison	Lee	Daniel McCready	26	62	21	8	34.8	1.36
Algona	Kossuth	Dr. F. McCoy	3	63	19, 20	2	30.4	1.50
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	3	56	20	— 8	26.8	0.13
New Ulm	Brown	Charles Roos	3	57	20	— 5	27.3	2.70
NEBRASKA.								
Bellevue	Sarpy	Rev. Wm. Hamilton	3	65	20	6.5	35.0	.....
Richland	Washington	Miss A. M. J. Bowen	3	67	20	6.0	33.0	.....
KANSAS.								
Fort Riley	Davis	Elford E. Lee	8	63	15, 22	23	41.7	1.07
Manhattan	Riley	H. L. Denison	26	68	23	20	38.3	2.13
DELAWARE.								
Wilmington	Newcastle	U. D. Hedges, M.D.	5	59	21, 23	19	38.5	6.45
SOUTH CAROLINA.								
Beaufort	Beaufort	M. M. Marsh, M. D.	13	80	17	34	55.0	2.59

Table showing the average temperature and fall of rain (in inches and tenths) for the month of March, for each of the years named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1864.	
		Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine	7	27.6	1.20	24.6	1.67	28.3	7.17	28.2	2.66	32.4	9.68	28.2	4.48	31.7	4.9
New Hampshire	4	30.9	6.36	25.3	1.19	30.7	2.06	29.5	1.22	32.5	6.51	29.8	3.47	30.1	2.76
Vermont	6	28.4	0.72	22.2	1.27	27.0	2.24	26.5	1.43	33.8	4.18	27.6	1.97	31.7	2.30
Massachusetts	9	32.1	1.69	26.4	1.46	31.3	2.61	32.1	1.81	38.4	5.99	32.1	2.71	33.4	3.76
Rhode Island	1	32.6	0.86	29.2	1.55	32.2	3.35	32.8	2.05	40.6	8.00	33.5	3.16	.....	.....
Connecticut	4	33.4	0.96	28.3	1.47	32.2	2.66	31.9	2.20	39.6	8.31	33.1	3.12	36.1	2.09
New York	12	30.5	1.53	25.7	1.82	31.0	2.57	32.3	1.18	39.3	5.00	31.8	2.42	33.4	2.71
New Jersey	6	36.8	1.83	30.6	1.74	35.9	3.12	37.4	1.40	45.8	6.40	37.3	2.90	37.5	3.88
Pennsylvania	7	34.6	2.04	29.2	1.73	35.2	1.63	37.1	0.95	44.5	5.59	36.1	2.39	35.9	4.75
Maryland	3	39.0	3.62	33.5	1.78	38.4	1.62	39.2	0.85	48.8	5.42	39.8	2.66	37.9	3.52
District of Columbia.	1	41.6	.....	35.4	1.79	39.1	1.91	41.9	1.03	49.6	3.80	41.5	2.14	40.3	4.43
South Carolina	1	53.3	3.75	51.2	5.88	51.1	2.64	59.9	1.97	57.5	4.51	54.6	3.75	55.0	2.59
Tennessee	2	44.9	3.23	41.3	1.67	46.9	0.74	51.3	4.38	54.3	5.24	47.7	3.05	.....	.....
Kentucky	1	40.2	5.22	36.0	1.01	39.9	0.56	44.1	1.30	51.2	3.96	42.3	2.41	43.6	2.35
Ohio	15	35.4	2.80	29.8	1.92	34.5	1.21	37.4	1.36	45.9	4.30	36.6	2.32	36.0	2.38
Michigan	7	30.3	2.32	22.1	0.99	27.7	1.23	34.8	3.31	38.0	4.07	30.6	2.38	33.2	2.19
Indiana	6	37.0	4.40	34.3	0.58	37.1	1.25	42.2	2.04	47.2	4.06	39.6	2.47	36.7	2.56
Illinois	13	34.8	2.66	31.7	0.59	32.1	2.42	40.3	2.85	42.2	4.94	36.2	2.69	39.2	2.12
Missouri	4	39.4	2.45	37.4	1.06	39.5	1.80	48.2	3.53	48.4	7.32	42.4	3.23	40.8	1.67
Wisconsin	10	27.5	1.83	24.8	0.32	27.5	1.04	34.7	1.81	35.2	4.26	29.9	1.85	31.1	1.55
Iowa	10	30.9	1.45	26.3	0.93	29.6	2.11	40.1	2.06	40.6	4.45	33.5	2.20	32.6	2.58
Minnesota	2	25.6	.....	21.1	.....	22.9	1.00	33.7	1.16	30.2	3.03	26.7	1.73	27.0	1.42
Nebraska Territory.	2	.....	.....	.....	.....	.....	.....	44.7	1.80	39.8	1.73	42.2	1.76	34.0	.....
Kansas	2	.....	.....	.....	.....	37.2	2.60	48.0	2.58	46.6	2.78	43.9	2.65	40.0	1.59
California	2	56.3	4.26	57.5	1.10	56.3	0.74	54.4	3.25	51.6	2.35	55.2	2.34	.....	.....

NOTE ON THE GENERAL METEOROLOGICAL PHENOMENA OF THE MONTHS OF JANUARY AND FEBRUARY, 1864, IN EUROPE.—By M. MARIE DAVY.

[Translated for the Smithsonian Institution from the International Bulletin of the Observatory of Paris, 12th March, 1864.]

An examination of the meteorological phenomena presented by the months of January and February, just elapsed, leads to some important considerations regarding the study of atmospheric perturbations.

The month of January opened with weather of a stormy character. The cyclonic gale which, on the 31st of December, had its centre, at 8 o'clock in the morning, towards the southwest of Ireland, and which involved England and a part of France, proceeded across this latter country from northwest to southeast to the Mediterranean, where we recognize its prevalence from the 2d to the 4th of January. This fact, a rather exceptional one for this season, will subsequently become almost the rule.

On the 1st of the same month a centre of barometric pressure is discoverable on the North sea, which, during the following days, continues to extend and gather force while slowly making progress towards the southeast of Europe. On the 9th of January this strong pressure extended from Stockholm to Naples. After this last day it first drew back somewhat towards the north, and then entered upon a period of oscillations and continual displacements, during which the region over which it prevailed was found to be sometimes encroached upon on one side, and sometimes on the other. During this period of calm and cold for Europe, the barometric curves intimated, at different times, the existence and approach of foul weather on the Atlantic; but this weather, after having produced some agitation on the coasts of France and England, drew off towards the north, beyond the field of our observations, and it was not until the lapse of several days that we again detected its reappearance, first over the north, and then over the east and south of Russia, as if it had wheeled around the region of strong pressure.

It was not till after the 22d that the barrier, so to speak, was broken through, or that the line of transmission of this stormy weather, from the western towards the eastern regions, descended towards central Europe. A tempest, whose existence upon the Atlantic was announced in the Bulletin of the 20th, passed, in the following days, a little to the north of England, and then traversing the North sea, Norway, and Sweden, is found prevailing in the north of Russia on the 24th, having its centre, at 8 o'clock of the morning of that day, at St. Petersburg. Another, which closely followed it, arrives almost at the same point on the 27th.

At the same time that this movement was taking place, another, equally important, was in process. The extent of the trajectory of the stormy weather over Europe gradually contracted on the eastern border, and the Mediterranean now became menaced. This sea was invaded the 29th, 30th, and 31st of January by a tempest, which, after raging over the north of Europe, passed, though still growing feebler, over Germany. A similar state of things recurred on the 4th of February, and the Mediterranean was reached on the 5th, 6th, 7th, and 8th. The movement of withdrawal of the trajectory towards the west was still more marked on the following days. The 10th of February a storm gathers to the west of the British channel, and the next day descends upon the Mediterranean.

The general movement by and by recovers somewhat of its extent towards the east, and a new tempest which bursts upon the northwest of England on the 12th, was propagated to the Gulf of Bothnia by the 14th, and to the northeast of St. Petersburg by the 15th. Another follows it

closely, but is pressed back towards the south by the influence of the first; traverses Germany on the 17th, arrives at the Mediterranean on the 18th, and prevails there till the 21st. The way is opened anew towards the south, and from that date till the 10th foul weather is scarcely ever intermitted on the coasts of Portugal.

In proportion as instances are multiplied, we become more and more persuaded that there can be no great tempest in our regions without rotary movement, whatever be the cause which produces it. The velocity of the air, except under some local circumstances, scarcely ever surpasses that of a wind rather strong (*assez fort*), which mariners call a stiff gale. But where, in the midst of this mass of air in motion there happens to be produced a whirling movement around a centre more or less vertical, there occur, on the periphery of the space occupied by the phenomenon, points where the velocity of rotation is opposed to the velocity of general translation, and at these points the velocity of the wind may seem to be arrested; but there occur also, on the other hand, regions where these two velocities have the same direction, and by re-enforcing one another produce winds of an extreme violence. The rotary movement has then as a result the diminution of the velocity of the wind at certain points, and its translation to the opposite points where it will consequently be in excess.

Under ordinary circumstances cyclonic storms participate in the general movement of the mass of air in which they originate. They cannot deviate from it, excepting when they find a point of resistance in the projections of the surface, or in some neighboring cyclone (*tourbillon*). Now, we are approaching the time when our northern hemisphere will begin to grow warm, while the southern hemisphere will be becoming cold. The tendency of the air from the equatorial regions towards our own, under the form of the upper trade-winds between the equator and the north tropic, and under the form of winds from the southwest beyond that region, will go on, therefore, diminishing, while the translation of the air, under the form of northeast trade-winds, will assume, on the contrary, more activity, in order to furnish to the southern hemisphere the excess of which it will have need. The orbit described by the general currents has commonly less prolation towards the north in spring than in autumn; it ascends not so high towards the pole, penetrates less deeply into the east of the continent, and is more readily modified by the prominences of central Europe. We are entering on the season of gusts of wind. Under these conditions of the atmosphere accidental deviations, more or less considerable, may be produced as the effect of changes of temperature, and, above all, great condensations of vapor which accompany those gusts. Such are the accidents which diversify, without end, the meteorological conditions of each day.

To what cause should we attribute these great cyclonic movements of the air? Many theories have been advanced and sustained by high scientific authority. The contact and struggle of opposed currents, the earth's movement of rotation, the convergence of the meridians, atmospheric electricity, great condensations of vapor, and the rapid refrigeration which accompanies them, have been, by turns, invoked. The very diversity of opinions maintained by eminent meteorologists shows how much obscurity still rests upon the question, and how much new researches are required. The first point to be solved, is to learn whence come the cyclones, for it is by being present, so to say, at their origination that we shall be able to discover the mechanism of their formation. This is a question of time. In a practical point of view, there is another of more pressing interest: to seek, by all possible means, every indication which may enable us to foresee the arrival of a storm, its intensity, and the path which it will pursue. The discussion

of maritime documents may hasten this result by giving us a more complete interpretation of the signs furnished by continental observations. We have already seen in the Bulletin of Friday, 11th, that the concavity of the curves of equal barometric pressure directed, December 1, 1862, towards the west, on the Bay of Biscay, and the British channel coincided with a rotary storm prevailing at the same instant in the neighborhood of the Azores, and destined to discharge its violence, eight days afterwards, on the North sea.

BI-MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

APRIL AND MAY,

1864.

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1864.

BI-MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,

Washington, July, 1864.

The past winter, unprecedented in the Mississippi valley for its sudden and severe changes, gave rise to apprehensions for the safety of the fall-sown crops. The dryness and coolness of the spring induced the belief that the roots of the grain crops were extensively killed, and at this time the last returns to this Department were made. But looking to the character of the winter, rather than to appearances at that time, the opinion was given that "there was an over-estimate of the injury, for the cold, although severe, was steady, calculated to turn the blades brown, but not to destroy the root." The favorable weather of April and May confirmed the correctness of this conclusion, for although the wheat crop will be less than an average, yet the growing season is now so propitious that it promises well, and it is pleasing to see, in the letters of our correspondents, so general buoyancy over the restored prospects of the crops. Still the wheat crop will be considerably below an average, even if it escapes rust, the fly, chinch-bug, and all the other casualties to which it is so incident. Many acres of winter wheat have been ploughed up and put in corn, and the lateness of the spring, in many localities, occasioned a smaller breadth of spring wheat to be sown. Its promise, however, is excellent, perhaps never better. The decrease of winter wheat, from cold of last winter, will be about thirty per cent.

In portions of Iowa, Wisconsin, and Minnesota, complaints are made of drought since the first week of May, but the crops were not suffering in those localities. Their color was yet good, but not growing as rapidly as desirable. "The weather," says our correspondent at Minnesota City, "in this section continues very dry, no soaking rain having fallen since last August. We have had light showers, which have prevented everything from drying up entirely." A few complaints are made of the chinch-bug. Corn, although later planted than usual, was growing satisfactorily; and in some northern localities it had to be replanted, having rotted, in consequence of the cold weather in the beginning of May. For the particulars of the present condition of the crops, the reader is referred to the tables and comments thereon in this report. It is only necessary to say here, that whilst *wheat* is injured nearly 30 per cent., the breadth of *corn* planted is nearly as great as last year; the *oats* sown are more than an average, and the *meadows* promise the largest hay crop ever mown. The increase and condition of *sheep*, as heretofore reported, are sustained by the returns just received.

The tables showing the condition of various crops will be found more than usually instructive. The comparative advantages of grain-sowing by the drill and broadcast are clearly seen. The winter was not so unfavorable in the eastern States as in the west, and hence it is in the latter section that the merits of the drill are to be determined. With the fact before him, that drill-sown wheat is much less injured than the broadcast, how can any farmer reconcile it with his interest to continue broadcast, because he may have good crops by that method in seasons when there is no freezing out?

Another matter of interest is the condition of the grape. It was supposed that the vines had generally been destroyed in the west, but this is not the case. Considerable injury has been sustained there, but a fair crop of grapes may be anticipated. Kelly's island, in Lake Erie, is regarded as one of the best localities for grape-growing in the whole country, because of its freedom from the rot, and the correspondent of the Department there supposes there will be from 75 to 80 per cent. of a full average crop. More than one-half the fruit-buds were destroyed, but by deferring the pruning until the living ones could be seen nearly the usual number of living buds were retained.

The injury to the vines presented a good opportunity for collecting facts in relation to the comparative hardiness of the different varieties, and the returns on this point will be of much interest to every person, for the culture of the grape is spreading rapidly everywhere.

A heavy grape crop is anticipated in California, and the *Mercantile Gazette*, of San Francisco, speaks of the fact that pipes and hogsheads are being rapidly sent to Los Angeles "for the immense supply of wine anticipated from the present year's vintage."

Our reports indicate a good peach crop in the eastern States—a total failure in the west. Of apples, a full crop east—a very partial crop in the west, where, although there was much bloom, a large amount of it fell off without setting. Of pears and cherries, there will be but few in the west, but a good crop in the east; in eastern localities, however, there will be failures. Of small fruits there will be a general good crop, although in places even the blackberry fruit-buds were destroyed.

The correspondence accompanying the returns of the circular show a general scarcity of labor, more especially of farm labor in the west. Nearly all of our letters from that section speak of its scarcity occasioned by the recent call for the 100-days volunteers. This has had the effect to lessen the amount of crops sown in many places, but in many others it is stated that the breadth of the crops planted and sown is not less than that of last year. How this has been accomplished may be seen in the following extract, one from many others that might be given from letters received. A correspondent from Iowa says:

"Farmers, with the aid of their wives and daughters, have got in as great a breadth of crops as ever before, and in as good condition. Help being very scarce, our patriotic women have endeavoured to do the work of their husbands, and sons, and brothers in the field."

Forever honored be these patriotic women, and no more grateful duty has fallen to me than thus, in the most public manner, to pay homage to the exalted worth of the wives and daughters of the farmers of the country.

The Department of Agriculture is a new one, and many difficulties have beset the Commissioner in establishing it in such manner as to make it the most useful to the farming interest of the country. These difficulties are greater by the present condition of the country, when considerations of economy demand the most careful expenditures. Under such circumstances it is not unbecoming to refer to such commendation as is embraced in the following extract from the letter of an intelligent correspondent on Kelly's island. Many more such might be given.

"Please accept," he writes, "my thanks for your bi-monthly reports. They seem to me to be *just the thing*, and cannot be too highly appreciated."

And to such expressions of approbation may be added the numerous applications for the distribution of a greater number of copies of these reports. For this approval of his efforts to render his department useful to those for whom it was created the Commissioner returns his sincerest thanks.

Finally, the Commissioner congratulates his faithful and laborious correspondents that Congress has restored *free* postal communication between them and the Department. Henceforth no pre-payment of postage is required of them, nor any form of indorsement on envelopes containing their communications.

ISAAC NEWTON,
Commissioner.

OUR EXPORTS.

The following statement will show that, though there was a gain in our exports from 1862 to 1863, there has been a falling off, thus far, in the exports of the present year—and this in the face of an increased importation.

Exports of domestic produce at New York from January 1 to June 1, 1864, compared with the exports of last year during the same time.

FLOUR	From January 1 to June 1, 1864...	barrels..	819, 522
	Same time last year.....	do....	966, 794
RYE FLOUR.....	From January 1.....	do....	1, 693
	Same time last year.....	do....	3, 382
CORN MEAL.....	From January 1.....	do....	52, 301
	Same time last year.....	do....	55, 235
WHEAT	From January 1.....	bushels..	4, 580, 901
	Same time last year.....	do....	4, 807, 250
CORN	From January 1.....	do....	129, 728
	Same time last year.....	do....	3, 401, 364
RYE	From January 1.....	do....	405
	Same time last year.....	do....	262, 731
BARLEY.....	From January 1.....	do....	150
	Same time last year.....	do....	51, 139
OATS	From January 1.....	do....	17, 307
	Same time last year.....	do....	103, 228
PEAS	From January 1.....	do....	85, 663
	Same time last year.....	do....	61, 140
COTTON.....	From January 1.....	bales...	20, 134
	Same time last year.....	do....	3, 306
HAY	From January 1.....	do....	12, 831
	Same time last year.....	do....	12, 746
HOPS	From January 1.....	do....	13, 151
	Same time last year.....	do....	15, 482
TOBACCO.....	From January 1.....	hogsheads..	13, 683
	Do. do.....	packages..	22, 928
	Same time last year.....	hogsheads..	12, 387
	Do. do.....	packages..	24, 130
Manufactured do..	From January 1.....	pounds..	1, 249, 882
	Same time last year.....	do....	1, 379, 893
PETROLEUM	From January 1.....	gallons..	8, 834, 552
	Same time last year.....	do....	15, 291, 572
PROVISIONS :			
Pork	From January 1.....	barrels..	72, 303
	Same time last year.....	do....	85, 062
Beef	From January 1.....	do....	18, 031
	Same time last year.....	do....	19, 377
Beef	From January 1.....	tierces..	38, 364
	Same time last year.....	do....	33, 385
Cut meats..	From January 1.....	pounds..	78, 794, 268
	Same time last year.....	do....	142, 816, 828
Butter	From January 1.....	do....	5, 424, 893
	Same time last year.....	do....	6, 378, 663
Cheese	From January 1.....	do....	10, 494, 069
	Same time last year.....	do....	8, 054, 508

Lard	From January 1	do	27, 562, 167
	Same time last year	do	71, 912, 409
	From January 1	do	18, 422, 599
	Same time last year	do	18, 721, 102

Value of exports from New York from January 1 to June 1, 1864.

1862, \$50,358,779; 1863, \$74,831,761; 1864, \$69,435,853.

NOTE.—The following information just received from Mr. Riley Root, of Galesburg, Illinois, patentee of a new process for clarifying Chinese and other cane-juices, may be of much benefit to those engaged in raising sorghum: "I would add, in relation to sugar-making, that after the sirup has granulated the remaining (ungranulatable) portion of the sirup is drawn off. But with our cane at the north the mucilage is so adhesive and stiff that assistance by means of a press has been found beneficial. After the first pressing is performed the follower can be removed, and a little clear cold water may be stirred into the sugar, and press again. This process can be performed several times, and at each successive time the sugar becomes whiter, with some slight diminution of the sugar; but each successive draining becomes a more perfect article of golden sirup so that what is lost in one is gained in the other."

Table showing the condition of the fruit crop on the first day of June, 1864, and the amount of maple sugar and molasses.

STATES.	APPLES.		PEACHES.		PEARS.		GRAPES.	MAPLE SUGAR & MOLASSES.		
	Average condition of trees, as to number killed or fatally injured.	Average amount of the bloom.	Average condition of trees, as to number killed or fatally injured.	Average amount of the bloom.	Average condition of trees, as to number killed or fatally injured.	Average amount of the bloom.	What sort of grape suf- fered most from cold. What suffered the least.	Average amount of bloom or growing buds.	Average amount of maple sugar made this season, and quality.	Average number of gal- lons of maple molasses made this season.
Maine	11½	11¾	-----	-----	11	10½	-----	-----	13	13
New Hampshire	-----	12	11	13	-----	11	-----	-----	13¾	14
Vermont	10¾	13	-----	-----	12	14	-----	13½	12	11¼
Massachusetts	10	11	9¾	14	10¾	10¾	-----	11½	15	14¼
Connecticut	12	11½	10½	10	12	11¾	-----	12	11½	9½
Rhode Island	-----	12	6	15	-----	-----	-----	-----	-----	-----
Delaware	-----	-----	-----	-----	11	13	-----	-----	-----	-----
New York	10	12½	7½	10½	9	11¾	-----	10¾	11¾	11½
New Jersey	8	12	11	12	10	10	-----	9	-----	-----
Pennsylvania	10	12¾	8	7¼	10	9	-----	8½	11	11
Maryland	9	12	10	11½	9	10	-----	10	-----	-----
Kentucky	8½	9	5½	-----	8	5	-----	7	11	11
Ohio	8½	11	6¾	-----	7	7	-----	6	10¼	10
Michigan	9	8	6	2	8	6¾	-----	6	10	9
Indiana	8¾	7¾	2½	-----	7¼	5½	-----	5	11	10¾
Illinois	9½	11	4½	-----	8½	7½	-----	6¼	11¼	11
Missouri	9	9	5	-----	8	6½	-----	5	13	12½
Wisconsin	8¾	7	5	-----	7½	6	-----	7	8	7¾
Iowa	8	7½	7	4	6¼	7	-----	8	12	11
Minnesota	11½	9	-----	-----	13½	-----	-----	7	10¾	11
Kansas	8½	7	5½	3	-----	7	-----	4	-----	-----
West Virginia	10	12½	6	6	9½	9¾	-----	11	12	12
Nebraska Territory ..	8	7	8	2	9	9	-----	6	-----	-----

Table showing the condition of grain crops on the 1st day of June, 1864.

STATES.	WHEAT, (winter.)		WHEAT, (winter.)		WHEAT, (spring.)		BARLEY.		CORN.	
	Average growing condition of winter wheat.	Average amount frozen out or destroyed by other causes.	Average amount destroyed by cold of that sown by drill.	Average amount destroyed by cold of that sown broadcast.	Average amount sown this spring.	Average growing condition of spring wheat in May.	Average amount sown.	Average growing condition in May.	Average number of acres planted this spring.	Average growing condition of the crop on 1st of June.
Maine	10	10	-----	-----	7 $\frac{1}{11}$	9 $\frac{1}{2}$	11	11	8 $\frac{2}{3}$	10
New Hampshire	13 $\frac{1}{2}$	9 $\frac{1}{2}$	-----	5	8 $\frac{1}{2}$	12	9 $\frac{1}{2}$	-----	10	11 $\frac{1}{2}$
Vermont	12	8 $\frac{1}{2}$	-----	-----	8 $\frac{2}{3}$	11 $\frac{2}{3}$	12	11	9 $\frac{1}{2}$	11
Massachusetts	10 $\frac{1}{2}$	10 $\frac{2}{3}$	9	5	8	11 $\frac{2}{3}$	9 $\frac{1}{2}$	10	10 $\frac{1}{2}$	10 $\frac{1}{8}$
Connecticut	12	8 $\frac{1}{2}$	-----	9	11	12	10 $\frac{1}{2}$	11 $\frac{1}{2}$	10	-----
Rhode Island	-----	-----	-----	9	-----	-----	8	11	9 $\frac{1}{2}$	11 $\frac{1}{2}$
Delaware	12	8 $\frac{1}{2}$	9	8	-----	-----	-----	-----	-----	11
New York	10 $\frac{1}{2}$	7	8	7	8 $\frac{2}{3}$	8 $\frac{2}{3}$	10	10 $\frac{1}{2}$	10	10
New Jersey	11	9	9	8	-----	-----	11	11	11	10 $\frac{1}{2}$
Pennsylvania	10 $\frac{1}{2}$	6 $\frac{2}{3}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	9 $\frac{3}{4}$	10	11	11 $\frac{2}{3}$	10
Maryland	10	7 $\frac{2}{3}$	8	8	-----	-----	12	12	9	11 $\frac{1}{2}$
Kentucky	9	6	7 $\frac{2}{3}$	5 $\frac{7}{9}$	-----	-----	12	9	9	7 $\frac{1}{2}$
Ohio	10 $\frac{1}{4}$	6	6 $\frac{2}{3}$	6	11	10	10 $\frac{1}{2}$	11	10	9
Michigan	10 $\frac{1}{3}$	7	7 $\frac{2}{7}$	6 $\frac{1}{3}$	7 $\frac{1}{2}$	7 $\frac{1}{7}$	9	8	11 $\frac{1}{2}$	8 $\frac{1}{4}$
Indiana	10 $\frac{1}{2}$	7	8	7	10	11	9 $\frac{2}{3}$	10 $\frac{2}{3}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$
Illinois	9	6 $\frac{1}{2}$	7 $\frac{2}{3}$	6 $\frac{1}{2}$	10	11	10 $\frac{8}{10}$	10 $\frac{8}{4}$	10 $\frac{5}{9}$	9
Missouri	9	6 $\frac{2}{3}$	7 $\frac{3}{10}$	6 $\frac{2}{3}$	8	9	9	8	7 $\frac{2}{3}$	7 $\frac{1}{2}$
Wisconsin	9	7 $\frac{1}{2}$	8	7 $\frac{2}{3}$	10 $\frac{2}{7}$	8 $\frac{6}{15}$	11	8	10 $\frac{6}{10}$	7 $\frac{1}{2}$
Iowa	9	7	7	6 $\frac{2}{3}$	9	11	12	11	10	10
Minnesota	8	7	9	8	10	10	10	8	11	7 $\frac{1}{2}$
Kansas	8	6	7	5 $\frac{1}{4}$	10 $\frac{1}{2}$	11	14	11	11	9
West Virginia	9 $\frac{2}{3}$	7 $\frac{2}{7}$	8 $\frac{1}{2}$	6 $\frac{2}{3}$	-----	-----	-----	-----	11 $\frac{1}{2}$	7
Nebraska Territory	12	7	-----	-----	11	12	11	12	12	9

Table showing the condition of the oat and clover crops, and the condition and increase of sheep, &c., on the 1st day of June, 1864.

STATES.	OATS.		CLOVER.		SHEEP.		WEATHER.									
	Average number of acres sown this spring.	Average growing condition of crop in May.	Average number of acres sown this spring.	Average condition of old fields.	Average condition of sheep in May.	Average increase of sheep this spring.	April.				May.					
							Favorable.	Wet.	Cold.	Dry.	Snow.	Favorable.	Wet.	Cold.	Dry.	Snow.
Maine.....	9	11	9 $\frac{5}{8}$	13	10 $\frac{1}{2}$	10 $\frac{1}{2}$	20	8	4	11	2	11	35	1	.....	.....
New Hampshire.....	10 $\frac{3}{4}$	11 $\frac{1}{4}$	9	11 $\frac{1}{4}$	9 $\frac{5}{8}$	9	4	8	3	1	.....	7	6	.....	.....	.....
Vermont.....	11 $\frac{1}{2}$	11 $\frac{1}{2}$	8 $\frac{3}{4}$	12	9	10	13	6	2	6	1	15	12	1	.....	.....
Massachusetts.....	10	11	11	13 $\frac{1}{2}$	9	11 $\frac{1}{2}$	6	20	9	1	.....	18	12	1	.....	.....
Connecticut.....	11 $\frac{1}{2}$	11 $\frac{1}{2}$	.....	12	.....	12 $\frac{1}{2}$	6	6	.....	.....	.....	12	4	.....	.....	.....
Rhode Island.....	11 $\frac{1}{2}$	11	.....	12	8	8	5	1	2	.....	.....	6	1	.....	.....	.....
Delaware.....	.....	12	.....	11	.....	.....	5	3	.....	.....	.....	2	2	.....	.....	.....
New York.....	10 $\frac{1}{2}$	10	10	10 $\frac{1}{2}$	9 $\frac{5}{8}$	11 $\frac{3}{4}$	36	62	26	17	2	44	84	6	.....	.....
New Jersey.....	12 $\frac{3}{4}$	11	9	10	10	12 $\frac{1}{2}$	10	6	15	3	2	20	15	4	.....	.....
Pennsylvania.....	9 $\frac{3}{4}$	8 $\frac{3}{4}$	10	8 $\frac{1}{2}$	9 $\frac{1}{2}$	11 $\frac{1}{4}$	40	71	19	9	5	69	64	9	.....	.....
Maryland.....	8 $\frac{3}{4}$	11	9	10	10	11 $\frac{1}{4}$	17	15	5	1	1	24	11	1	.....	.....
Kentucky.....	12	13	9 $\frac{1}{2}$	8 $\frac{1}{2}$	9	10 $\frac{1}{2}$	11	5	14	5	.....	16	7	6	.....	.....
Ohio.....	10	11	9	8	10 $\frac{1}{2}$	12	35	106	39	16	.....	86	75	10	.....	.....
Michigan.....	10	9	8 $\frac{1}{2}$	9 $\frac{1}{2}$	10	10 $\frac{1}{2}$	15	42	19	3	.....	33	14	8	.....	.....
Indiana.....	10	10	9 $\frac{1}{2}$	9 $\frac{1}{2}$	10 $\frac{1}{2}$	12 $\frac{1}{2}$	38	75	30	5	.....	65	30	12	.....	.....
Illinois.....	12	10	11	10	10	11 $\frac{1}{2}$	34	90	51	13	.....	79	36	13	.....	.....
Missouri.....	9	10 $\frac{1}{2}$	11	12	11	12	13	27	24	6	.....	20	16	9	.....	.....
Wisconsin.....	10 $\frac{3}{4}$	7	12	9	9 $\frac{3}{8}$	12 $\frac{5}{8}$	22	32	24	16	.....	19	7	3	.....	.....
Iowa.....	12 $\frac{3}{4}$	11 $\frac{1}{2}$	10 $\frac{1}{2}$	9 $\frac{1}{2}$	10 $\frac{1}{2}$	13 $\frac{1}{4}$	40	52	40	23	.....	52	16	14	.....	.....
Minnesota.....	11 $\frac{1}{2}$	11	12	8	9	13 $\frac{1}{4}$	8	3	14	39	.....	9	6	2	.....	.....
Kansas.....	11	11	12	9	9	13	14	7	8	13	.....	27	7	1	.....	.....
West Virginia.....	10	12 $\frac{3}{4}$	7	10	11 $\frac{1}{2}$	11	2	5	2	2	1	5	6	.....	.....	.....
Nebraska Territory.....	13	12	.....	10	.....	.....	4	3	8	1	.....	6	1	1	.....	.....

FRUIT CROPS.

The preceding tables exhibit the general condition of the fruit and grain crops on the first of June. As was to have been expected from the character of the winter, this condition presents two general differences—in the east all crops promise abundantly, but in the west the fruits and fall-sown grain crops have been much injured by the intense severity of the cold at the close of the year 1863 and the cold of February, when there was but little snow on the ground, in nearly all localities. We will briefly notice each of the crops referred to in the tables.

Apples.—In the eastern and middle States the crop will be a good one, but still there are localities where the wet weather caused the fruit to fall off. In the west a general complaint is made by our correspondents of this falling off; and although the amount of the bloom indicates sufficient for an excellent crop, yet an injury which destroys a fourth of the fruit buds so as to prevent their blooming is usually fatal to the setting of the rest.

Peaches.—This crop is in good condition in the eastern States; in the western it is destroyed, with a large number of the trees, mostly the old ones. Canning peaches may therefore be looked upon as profitable to those having them during the next fall.

Pears.—The pear has not yet reached a point in its cultivation when it may be regarded as a general market crop, but its hardiness has recommended it to every section of the country, and it is rapidly becoming more than a simple garden product. Like all other fruit crops, it is good in the east; in the west severely injured.

Grapes.—The column asking which variety was most injured, and which the least, has been left blank, for the answers require a more careful arrangement than could be shown in the table. The returns connect themselves with many letters accompanying them; hence they will not be given until in our next report.

Maple sugar and molasses.—It is gratifying to see the great increase in this manufacture. It will serve to keep down prices of the imported, as well as the amount of their importation. Should the crop of sorghum be favored with a good season, the country will supply its own wants and those of the smaller towns. The *quality* of the maple sugar is spoken of as good.

GRAIN CROPS.

Winter wheat.—The figures in all the tables do not *directly* express the amount of the injuries. Thus, 8 denotes an injury of *two-tenths*, and not *eight-tenths*, for the starting point in all estimates of an increase or decrease is at 10; thus, 11 means an *increase* of *one-tenth*, and 9 a *decrease* of *one-tenth*.

It will be seen that the winter wheat is in general good condition in the eastern States, but in New York it is frozen out three-tenths, or thirty per cent., in Pennsylvania three and a half tenths, in Maryland two and one-third tenths, in Kentucky and Ohio four-tenths, and in the rest of the western States from three to three and a half tenths. This will lessen the wheat crop at least *thirty per cent.* from the yield of last year.

The general growing condition is good; in some northern localities drought prevails, which reduces it below a general average in several of the States.

Drill and broadcast sowing.—There is a marked difference in the loss by freezing between the drilled and broadcast sown. The cause of the injury varied in different localities; in many it was by upheaval, in others the roots were killed by exposure to intense cold without any protection, and in others by being covered with water, which froze so intensely as to destroy the roots of

the wheat. The most marked difference in favor of drill sowing was in the first of these causes. But these returns, too, so connect themselves with the information communicated by letter, that we reserve further comment until the next report.

Spring wheat.—This crop is looking unusually well, but it will be seen from the table that an average amount is not sown. The lateness of the spring and the great scarcity of labor prevented; but it is so nearly an average crop that, with no further drawback upon it, it will be excellent.

Barley.—This is one of the most favorable crops, both in amount and its growing condition. It is above an average in both, and not a single complaint has been made about it.

Corn.—The lateness of the spring retarded the planting of this crop, but the subsequent favorable weather brought it forward rapidly. In some northern localities it had to be replanted where put in early, but generally the crop never came up more favorably. The only State which returns a much lessened planting is Missouri, showing the effects of the war. In many places there are neither laborers nor fencing. In some States, as Wisconsin and Minnesota, the crop is not in good growing condition. This is occasioned by drought; but generally our correspondents speak in most satisfactory terms of the prospect when their returns were made on the first of June.

Oats.—A few words suffice for this crop. It was never as good as now, either in amount or growing condition.

Clover.—This crop is highly favorable, both for pasture and hay.

Sheep.—The condition and increase of these continue as heretofore reported, and the wool crop will be excellent. The next report will show the amount of wool clipped, and whatever else in our foreign imports and domestic consumption that will be of interest to the farmer.

Weather.—The table exhibits a large proportion of “wet weeks.” It was this state that so much favored the crops, especially of the fall-sown kinds.

Since the foregoing was prepared for press, personal observation, and numerous reports from others, enable us to say that the hay crop of Pennsylvania, Delaware, Maryland, and probably all the eastern States, has seldom, if ever, been excelled in quantity and quality, and is being secured in the best condition. The crops of wheat, oats and corn, in the same sections, are also as promising as ever seen at this season.

METEOROLOGICAL REPORT.

FROM THE SMITHSONIAN INSTITUTION.

It has been found necessary to abridge the space allotted to this report, and therefore much material of a character similar to that which appeared in previous numbers has been omitted. The tables and abstracts which are inserted show very fully the temperature and rain in all parts of the country, together with the advance of the season in the different States, as evidenced by the opening of rivers, the diminution and disappearance of frost and snow, the arrival of birds, the flowering of plants, and the green hue of the forests. With regard to the appearance of birds, Mr. Abell, of Welshfield, Ohio, writes as follows, and the same fact has been mentioned by other correspondents of the Institution :

“The arrival of birds was, in most instances, later than usual this spring, and the number that has arrived is far less than any previous year I recollect, (say one-third to one-half less.) This is noticed by the people at large. If this is general throughout the United States, it would seem that it must soon tell fearfully against some of our crops; for already insects are so perceptibly on the increase here as to be noticed by casual observers.”

A very brief abstract is given of the date of thunder-storms in March and April, with the places where they occurred; after which, having become very numerous, they are omitted.

MARCH, 1864.

FREEZING AND OPENING OF RIVERS, &c.

March 2.—Muscatine, Iowa.—Ice run out of the river; 4th, ferry-boat commenced crossing.

March 4.—Middletown, Connecticut.—Ice moving from the Connecticut river; 9th, steamer arrived from New York.

March 5.—Brandon, Vermont.—Ice disappeared in Otter creek.

March 8.—Tioga, Pennsylvania.—Ice all out of the river.

March 11.—Rutland, Vermont.—Otter creek clear of ice.

March 11.—New York.—First boat from New York arrived at Albany.

March 12.—Schenectady, New York.—Mohawk river opened this morning.

March 12.—Milwaukee, Wisconsin.—Ice broke up on the river; 19th, river frozen over again; 26th, ice finally left the river.

March 12.—Lyons, Iowa.—First boat passed up the river; went up to Sabula, eighteen miles, and turned about on account of ice.

March 12.—Saint Paul, Minnesota.—The Mississippi river open to the foot of Lake Pepin.

March 14.—Littleton, New Hampshire.—Ice in the Connecticut river all gone.

March 17.—Lisbon, Maine.—Horses cross the Androscoggin at SW. Bend Ferry on the ice, but the ice is very thin.

March 17.—Beaufort, South Carolina.—Ice of the thickness of a silver half dollar formed last night.

March 20 —New Lisbon, Ohio.—Ground frozen eight inches deep.

March 20.—Waverly, Illinois.—Ground frozen five and a half inches deep, the greatest frozen during the winter. The weather was much colder in January, but the ground being covered with snow prevented the frost from penetrating the earth except where there was no snow. The weather generally for the last two months has been dry and cold, killing nearly all the winter wheat.

March 20.—Iowa Falls, Iowa.—On the 13th the river was clear of ice; now it is nearly all closed. The frost was out of the ground in many places; but now it is about eight inches deep.

March 21.—Skaneateles, New York.—The lake frozen all over the first time this winter.

March 21.—Passaic Valley, New Jersey.—Morris canal opened.

March 21.—Bellevue, Nebraska.—The river closed with ice and snow on the night of the 21st, and broke up the night of the 23d.

March 22.—Tioga, Pennsylvania.—River frozen over again.

March 25.—Saint Paul, Minnesota.—The Mississippi open to the head of Lake Pepin. Depth of ground frozen three feet.

March 28.—Tioga, Pennsylvania.—River clear from ice again.

March 30.—Lisbon, Maine.—Ice gone, so as Androscroggin is crossed at SW. Bend Ferry in a small boat. Some ice is above the ferry.

March 30.—Jamestown, New York.—Frost disappeared about the 12th. Afterwards the ground froze again to the depth of twelve inches, but is now about out of the ground.

March 31.—Harrisonville, Missouri.—The depth of the frost in the ground this winter did not exceed six inches at any time, as before the severe cold set in the ground was covered with sleet and snow.

March 31.—Embarrass, Wisconsin.—Ground not frozen. Snow yet deep, except in a few spots; average depth one foot. Wolf river opening in places; Embarrass more than half open. This station is located on the dividing ridge half way between the rivers, and is mostly heavily timbered land. Towards the north there are openings often three miles; to the east, south, and west heavy timber for miles, (unknown.)

Kelley's Island, Ohio.—The lake in this vicinity was nearly clear of ice on the 7th of March, so much so that the sloop *Gazelle* crossed from the island to Sandusky without encountering any serious obstruction. Continued open until the 10th, when the channel between the island and the main land was filled with loose ice from the upper end of the lake. On the 12th nearly clear again; *Gazelle* crossed from Sandusky to the island. On the 20th the lake was skimmed over with new ice, which continued to increase in thickness, and on the 22d was sufficiently strong to allow of crossing on foot. For three days the crossing was good to Johnson's island from Sandusky, and on the 23d several persons crossed on the ice from Marblehead to this place. On the 25th the ice had become so weak as to be unsafe, and on the 26th the steamer *Island Queen* succeeded in getting through the ice and reached the island in the evening. Instances have not been unfrequent when old ice has continued to a much later date, occasionally until the first week in April; but this is the only instance during my residence in this locality—a period of more than twenty-five years—when new ice has formed at so late a date, and, after navigation was once open, of sufficient strength to allow of crossing on it to the main land.

Dubuque, Iowa.—March 17, ice in the Mississippi river broken up and floating with the current. It was partially broken and moved somewhat on the 15th, so that the ferry-boat made a few crossings in an opening in the ice. The cold of the 19th, 20th, and 21st closed it up tightly; 24th, ice in the river broken up again sufficiently for navigation by boats.

Beaver Bay, Minnesota.—March 5, mail-carrier arrived in a small boat from Buchanan; reported ice further up; 9th and 10th, the northeast wind brought some flood ice up this end of the lake, (Superior;) 11th, lake covered with ice; 17th, a strong northwest wind moved the ice off from the shore, but next morning was covered again with ice; 19th, lake covered with ice as far as the eye can reach; 26th, the northeast wind broke the ice and brought a great deal to this end of the lake; from here to Superior, Wisconsin, all was filled with flood ice.

APPEARANCE OF BIRDS, FLOWERING OF PLANTS, &c.

March 1.—Augusta, Illinois.—Robins seen.

March 2.—Cannonsburg, Pennsylvania.—Blue bird and starling arrived.

March 2.—Urbana, Ohio.—Robins appeared.

March 2.—Muscatine, Iowa.—Wild ducks commenced coming.

March 3.—Newcastle, Indiana.—Large flocks of wild geese passed to the northwest, very noisy; 9th, blue birds and wrens observed for the first time this spring.

March 3.—Canton, Missouri.—Meadow larks returned. Wild geese remained all winter.

March 3.—Iowa Falls, Iowa.—Ten or twelve large flocks of geese passed over on their way south again and hundreds of ducks; 4th, hundreds of ducks and geese going south.

March 3.—Fort Madison, Iowa.—Swans first seen going north.

March 3.—Elkhorn city, Nebraska.—Wild ducks seen; 16th, prairie snipe and spotted squirrel; 21st, brant.

March 4.—Shelburne, New Hampshire.—Caught two brook trout, (*Salmo fontinalis*.)

March 4.—Lansing, Michigan.—Blue birds sing; 7th, small species of black birds in flocks; 10th, robins plenty; 27th, meadow larks.

March 4.—Pekin, Illinois.—The first general flight of geese noticed is this day; they appear to be the brant goose, and in very large numbers. A small flock was seen on the 15th of February, but too far to be distinguished.

March 5.—Wilmington, Delaware.—Observed a very large flock of black birds at 5 p. m. flying southward.

March 5.—Fort Madison, Iowa.—Blue bird came; 7th, lark and robin came.

March 6.—Mendon, Massachusetts.—Blue birds and robins appeared.

March 6.—Jamestown, New York.—Robins were first noticed about the 6th.

March 6.—Sykesville, Maryland.—Robins appeared.

March 8.—Westfield, Massachusetts.—Saw the first blue bird; 12th, saw the first robin. Tulips and daffodils just shooting out of the ground; 14th, alders in blossom.

March 8.—Rochester, New York.—A robin sings, and more on the 9th.

March 8.—Canonsburg, Pennsylvania.—Robins arrived.

March 8.—Oshtemo, Michigan.—Saw the first robin to-day; 10th, saw the first black birds; 13th, first meadow lark and common pewee.

March 8.—New Albany, Indiana.—Swamp lizards were heard to-day in the swamps in the neighborhood.

March 9.—New Bedford, Massachusetts.—A flock of wild geese heard in the evening.

March 9.—Moriches, New York.—Red-winged black bird seen this morning for the first time.

March 9.—Muncie, Indiana.—Flock of wild geese going northward.

March 9.—Augusta, Illinois.—Black birds in flocks.

March 9.—Dubuque, Iowa.—Wild geese in considerable numbers flying north; 17th, pigeons flying north.

March 9.—Fort Riley, Kansas.—Wild geese flying north.

March 10.—South Hartford, New York.—Blue bird first seen; 13th, robin first seen; 15th, wild geese passing north.

March 10.—Skaneateles, New York.—Robins noticed for the first time.

March 10.—Tioga, Pennsylvania.—Robins and blue birds made their appearance; 11th, wild geese flying north; 15th, redwings and ground birds came this morning.

March.—Pekin, Illinois.—Mallard ducks have arrived; they are very plentiful.

March 10.—Mount Pleasant, Iowa.—Observed first meadow larks, robins, and other spring birds.

March 11.—Cornishville, Maine.—Robins made their first appearance.

March 11.—Mendon, Massachusetts.—Wild geese flew north.

March 11.—New Bedford, Massachusetts.—Crocuses bloom in the warmest exposures. 13th, blossom buds of the silver poplar protruding; 20th, catkins developing; 25th, grass starting in warm situations; 31st, blossoms of the white or silver poplar considerably developed.

March 11.—Newcastle, Indiana.—Frogs heard for the first time.

March 11.—New Albany, Indiana.—Found to-day the "little harbinger of spring" (*Erigeron bulbosa*) in bloom; spring beauties (*Claytonia virginica*) and spring cress (*Cardamine rhomboidea*) beginning to show the colored petal buds. The liverworts (*Hepatica triloba*) have been in bloom for several days along the ledges and rocky hillsides with a southern exposure, but not near New Albany. 12th, found to-day in bloom the tooth worth (*Dentaria laciniata*) along warm hillsides with southern exposure.

March 12, 13.—Fleming, Pennsylvania.—Wild geese flying north.

March 12.—Austinburg, Ohio.—Wild geese flew northward.

March 13.—Lisbon, Maine.—Crows made their appearance; 17th, wild geese appeared; 26th, robins appeared.

March 13.—Brandon, Vermont.—Black birds first seen; 14th, blue bird first seen; 27th, robins have been in forests for more than a week.

March 13.—Greenwich, New Jersey.—Violets blooming in sheltered places.

March 13.—Sykesville, Maryland.—Crocuses in bloom.

March 13.—Welshfield, Ohio.—A large flock of white swans going north at 9 a. m.

March 13.—East Fairfield, Ohio.—Between 8 and 9 a. m., during a snow-storm, heard a very noisy flock of wild geese, or swans, slowly wending their way northward.

March 14.—Stratford, New Hampshire.—Wild geese went north.

March 14.—Sandwich, Massachusetts.—Wild geese flying north in large numbers.

March 15.—Galesburg, Illinois.—Robins appear.

March 16.—Lyons, Iowa.—Bluebirds came.

March 16.—Fort Madison, Iowa.—Woodcock came.

March 17.—Mount Pleasant, Iowa.—Geese observed flying south during the day.

March 17, 18.—Williamsburg, Maine.—Wild geese went north.

March 18.—New Bedford, Massachusetts.—A large flock of wild geese flew over.

March 19.—New Albany, Indiana.—Found the spring beauty in bloom. 26th, the rue anemone (*Thalictrum anemonoides*) in warm moist woods in bloom.

March 19.—Iowa Falls, Iowa.—Large flocks of geese going south yesterday and to-day.

March 21.—Cornishville, Maine.—A large flock of wild geese passed over to the north.

March 21.—Oshtemo, Michigan.—Pigeons begin to be seen; 28th, ground robins appear; 29th, the golden-winged woodpecker has come.

March 23.—South Trenton, New York.—First robin; 24th, first phœbe bird.

March 23.—Fleming, Pennsylvania.—Saw robins and blue birds for the first time this spring.

March 23.—Fort Riley, Kansas.—Very large flock of wild geese flying northeast at 11½ a. m.

March 24.—Sykesville, Maryland.—Kildeer arrived.

March 24.—New Albany, Indiana.—First pewee (*Sayornis fuscus*) was seen.

March 24.—Lyons, Iowa.—Robins appeared.

March 25.—West Waterville, Maine.—Robins first made their appearance to-day.

March 25.—Embarrass, Wisconsin.—Saw the first robin of the season to-day. Commenced making maple sugar; prospects are that very little will be made this spring.

March 26.—Shelburne, New Hampshire.—Robins and blue birds have been seen for a week past.

March 26.—Fort Ann, New York.—This morning robins and other spring birds made their appearance for the first time this year.

March 26.—Schenectady, New York.—Robins made their appearance this morning.

March 26.—Green Bay, Wisconsin.—First appearance of the robin; 28th, pigeons first appeared.

March 26.—Fort Madison, Iowa.—Frogs first heard.

March 27.—Fox Creek, Missouri.—Saw the first bloodroot blossom, (*Sanguinaria canadensis*.)

March 27.—Iowa Falls, Iowa.—A great many large flocks of geese passed north to-day.

March 27.—Mount Pleasant, Iowa.—Brants flying southwest all day. Heard the frogs to day for the first time. Black birds and wild pigeons were also observed for the first time.

March 28.—Wilmington, Delaware.—A flock of wild geese flying northward.

March 28.—Canton, Missouri.—Martins returned, but did not stay.

March 28.—Manitowoc, Wisconsin.—Pigeons here.

March 30.—Jamestown, New York.—Blue birds were seen for the first time.

March 31.—Canonsburg, Pennsylvania.—Bobolink and lark returned.

March 31.—Mount Pleasant, Iowa.—Sand-hill cranes flying north in multitudes; first observed this year.

March 8.—Byberry, Pennsylvania.—*Alnus serrulata* flowering; black birds (*Quiscalus versicolor* and *Agelaius phœniceus*) seen first this season in flocks. 9th, *Corylus avellana* and *Acer dasycarpum* flowering. 10th, *Corylus americana* flowering. 11th, *Acer rubrum* flowering; *Hepatica triloba* and *Sanguinaria canadensis* in bud. 12th, wild geese seen. 13th, geese still passing over. 14th, *Rana sylvatica* heard for the first time this season; buds on *Populus tremuloides* and some of the *Salices* much swollen. 27th, bull-frogs and spring frogs croaking and piping; mosquitoes on the water; fish swimming in the creeks; song sparrows singing and mating; fox-colored sparrows singing; cardinal grosbeaks mating and singing; bluebirds mating and building; snow-birds, larks, white-bellied nuthatch, and robins seen; crows and red-tailed hawks flying; skylarks gone north; *Luzula campestris*, *Carex novæ anglæ*, and *Populus alba* in bud. 28th, pewees arrived and singing; *Draba verna* in flower; *Epigæa repens* nearly out. 29th, larks mating; *Lamium amplexicaule* flowering; blossoms of *Viburnum prunifolium* much swollen; *Ornithogalum umbellatum* and *Allium vineale* quite green—about three inches high

30th, blue jay seen. 31st, *Populus tremuloides*, *Saxifraga virginicensis*, and *Salix humilis* flowering; belted kingfisher seen.

Winnebago, Illinois.—First appearance of birds:

	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.
First flight of wild geese northward.	Feb. 27.	Mar. 16.	Mar. 2.	Mar. 2.	Mar. 1.	.....	Feb. 28.	Mar. 8.
First appearance of black bird.	Mar. 24.	Mar. 24.	Mar. 13.	Mar. 7.	.....	.....	Mar. 17.	Mar. 9.
First appearance of robin	Mar. 20.	Mar. 15.	Feb. 25.	Mar. 31.	Mar. 26.	.....	.....	Mar. 25.
First appearance of frog	.....	Mar. 17.	Mar. 21.	Apl. 7.	Apl. 2.	Apl. 12.	.....	.....

THUNDER-STORMS AND DISTANT LIGHTNING.

March 5.—At Progress, New Jersey; Algona, Iowa.

March 7.—At Newcastle, Indiana; Harrisonville, Missouri.

March 8.—At Ottawa, Illinois; Harrisonville, Missouri; Bloomfield, Wisconsin; Fort Riley, Kansas.

March 9.—In Illinois, Missouri. Iowa.

March 10.—At South Hartford, New York; Beaufort, South Carolina; Urbana, Ohio; Newcastle, Indiana.

March 11.—Throughout New Hampshire, Vermont, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Ohio.

March 12.—At Cornishville, Maine.

March 13.—In New York, Pennsylvania, Delaware.

March 21.—At Kingston, Ohio.

March 27.—At Manhattan, Fort Riley, Kansas; Pleasant Plain, Iowa.

March 28.—At Welchfield, Ohio; New Harmony, Indiana; Milwaukee, Manitowoc, Wisconsin.

MISCELLANEOUS.

March 7.—Rutland, Vermont.—In the storm commencing on the 6th and ending on the 7th, more snow fell than the oldest inhabitants ever knew to fall at one time; depth fifteen inches.

March 7.—Brandon, Vermont.—Greatest snow-storm this winter; snow extremely moist and some drifted; depth thirteen and a half inches.

March 17.—Mount Pleasant, Iowa.—There are still remaining some snow drifts that were formed on the first of January; observed one where the snow must be two and a half feet deep.

March 23.—Lisbon, Maine.—The storm of 23d and 24th March, reported as a severe snow-storm at Washington and vicinity, also at Halifax, and other places east and south, was unaccompanied by snow or rain here. The wind, however, was very strong from the northeast on the 23d, and from the northwest on the 24th.

March 26.—Fox Creek, Missouri.—A whirlwind at 1.15 p. m., lifting water from a small pond four feet high, and carrying it away in mist; course from southwest to northeast.

March 28.—Rochester, New York.—A very dense fog came over the city from the northeast about 3 p. m., and continued until nearly night; a very rare occurrence.

March 28.—Fort Riley, Kansas.—Strongest wind for two years. It came from the northwest, and did some damage to property.

March 28.—Onawa, Iowa.—The barometer was lower this morning than at any time during the four years that I have taken observations.

March 28.—Montgomery, Colorado.—Violent gale all day from the west. The roofs were blown from three houses in this town.

March 28.—Fort Laramie, Idaho.—Slight snow-storm, and gale from the northwest.

March 29.—Cornishville, Maine.—Snow nearly all gone. 31st, four inches of snow fell.

March 30.—Tioga, Pennsylvania.—Snowed all day and night; heaviest snow-storm of this winter; depth sixteen inches.

March 30.—Lyons, Iowa.—Farmers just putting in the first wheat.

March 31.—Garrison's, New York.—The weather has been cold, and frost every night; ground frozen more or less almost every night through the month.

March 31.—Skaneateles, New York.—Yesterday and to-day the greatest fall of snow this winter; but it mostly disappeared by night.

Lansing, Michigan.—With the exception of about a week from the 18th, we have had a very warm and dry month. The rain of the 28th to the 31st was the only fall of water that even seemed to moisten the ground. Notwithstanding the open winter, wheat and grass look well in this vicinity.

Saint Paul, Minnesota.—Wells, &c., all dry.

ADDENDA TO THE TABLE FOR MARCH, 1864.

Received since the publication of the Bi-monthly Report for March and April, 1864.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Perry	Washington	Wm. D. Dana	27	45	22	8	29.7	3.05
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	5	54	21	— 2	28	1.58
Shelburn	do	F. Odell	27	55	22	— 3	31.7	1.15
North Barnstead	Belknap	Charles H. Pitman	5	54	22	14	32.1	.....
VERMONT.								
Calais	Washington	James K. Tobey	5	50	21	— 2	26.2	1.80
NEW YORK.								
Rochester	Monroe	M. M. Mathews, M.D.	4	56	21	11	32.4	3.44
Buffalo	Erie	William Ives	28	60	21	9	32.0	2.40
Seneca Falls	Seneca	Philo Cowing	4	58	21	8	33.6	.....
Fort Ann	Washington	P. A. McMore	27	69	4	30	46.1	2.00
Clinton	Oneida	H. M. Paine, M.D.	4	57	3, 21	10	34.8	2.51
White Plains	Westchester	Oliver R. Willis	29	55	22, 24	17	36.7	.....
Moriches, (L. I.)	Suffolk	Miss Sarah E. Smith	27	59	22	23	38.2	3.44
Platbush (L. I.)	Kings	Eli T. Mack	12, 28	52	22	19	36.7	2.30
Theresa	Jefferson	S. O. Gregory	11, 29	50	21	0	28.8	1.79
NEW JERSEY.								
Mount Holly	Burlington	M. J. Rhees, M.D.	5	59	21, 22, 23	22	39.0	1.20
SOUTH CAROLINA.								
Hilton Head	Beaufort	Major Jas. W. Abert	11	78	24	41	61.2	.....
MICHIGAN.								
Pontiac	Oakland	James A. Weeks	26, 27	57	20	7	32.8	.....
ILLINOIS.								
Elmira	Stark	O. A. Blanchard	28	50	20	13	35.0	2.25
Pekin	Tazewell	J. H. Riblett	27	67	21	8	36.6	2.49
Sandwich	De Kalb	N. E. Ballou	26	65	21	— 3	32.3	5.31
IOWA.								
Dubuque	Dubuque	Asa Horr, M.D.	3	58	19, 20	4	32.2	1.34
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	25	44	20	— 14	23.3	2.13
Tamercack	Hennepin	Miss Mary A. Grave	3	56	20	— 8	.....	.....
COLORADO TER.								
Montgomery	Park	James Luttrell	17	46	28	0	26.2	3.70
WASHINGTON TER.								
Neeah Bay	Clallam	James G. Swan	17	58	11	32	43.8	14.80
IDAHO TER.								
Sweetwater Bridge .....	.....	A. F. Ziegler, M.D.	23	62	3, 13	4	30.8	3.21
FEBRUARY, 1864.								
WASHINGTON TER.								
Neeah Bay	Clallam	James G. Swan	22, 24	52	26	32	42.7	10.40

CORRECTIONS.—James S. Lippencott, the observer at Haddonfield, New Jersey, writes: "The maximum temperature of 70° on January 28, 1864, I am now satisfied was four or five degrees too high, due to reflection, which I have since observed."

The amount of rain reported at Monroe, Michigan, in June, 1863, ought to have been 1.97, not 19.70. The observer by an error in reading the scale having taken tenths for inches, and therefore recorded the amount ten times too large.

APRIL.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for April, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

TEMPERATURE AND RAIN OF APRIL, 1864.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
West Waterville....	Kennebec	B. F. Wilbur	25	60	4, 6, 9, 12	28	41.2	.....
Lisbon	Androscoggin	Asa P. Moore	30	60	5, 12	28	40.7	2.55
Steuben	Washington	J. D. Parker	30	55	4	20	28.5	2.41
North Perry	do.	Wm. D. Dana	25, 30	58	4	17	37.8	2.25
Cornishville	York	G. W. Guptill	22	60	4, 12	26	37.9	3.54
Williamsburg	Piscataquis	Edwin Pitman	22, 25	60	12	26	40.5	3.27
NEW HAMPSHIRE.								
Littleton	Grafton	Robert C. Whiting	8	64	6	26	41.7	1.97
North Littleton	do.	Rufus Smith	22	56	4, 12	24	35.4	2.25
North Barnstead	Belknap	Charles H. Pitman	30	63	4	28	40.5	.....
Stratford	Coos	Branch Brown	25	61	6, 7, 18	25	39.5	1.30
Shelburn	do.	F. Odell	23	65	6	22	41.6	1.00
VERMONT.								
Middlebury	Addison	H. A. Sheldon	22	67	6	23	42.8	2.96
Brandon	Rutland	David Buckland	22	67	18	31	43.6	3.41
Rutland	do.	S. O. Mead	8, 22, 26	62	5, 7	30	44.1	.....
Calais	Washington	Jas. K. Tobey	23	62	7	20	35.5	.....
Burlington	Chittenden	Rev. McK. Petty	22	61	17	30	40.0	2.55
Pomfret	Windham	Rev. D. Hunt	22, 23, 26	62	3, 5	29	41.1	2.05
Craftsbury	Orleans	James A. Paddock	22	59	18	27	38.9	2.43
Lunenburg	Essex	H. A. Cutting	26	68	6	24	41.2	1.90
MASSACHUSETTS.								
Amherst	Hampshire	Prof. E. S. Snell	22	65	4	31	42.1	2.57
Mendon	Worcester	John G. Metcalf	29	62	4	28	41.4	.....
Springfield	Hampden	J. Weatherhead	22	70	7	25	42.6	2.54
Topsfield	Essex	John H. Caldwell	23, 24	62	3, 4	32	42.6	.....
Baldwinsville	Worcester	Rev. E. Dewhurst	24	63	3, 6	28	40.0	1.11
New Bedford	Bristol	Samuel Rodman	29	62	4	33	43.9	2.94
Williamstown	Berkshire	Prof. A. Hopkins	22	62	5, 6, 7	30	41.0	1.92
Sandwich	Barnstable	N. Barrows, M.D.	26	69	4	32	42.9	2.68
Westfield	Hampden	Rev. Emerson Davis	22	64	7, 13	30	43.0	2.32
CONNECTICUT.								
New Haven	New Haven	D. C. Leavenworth	24	69	6, 7	32	46.0	.....
Middletown	Middlesex	Prof. John Johnston	22	70	13	31	45.6	1.82
NEW YORK.								
Fishkill Landing	Dutchess	Wm. H. Denning	23	72	5	31	47.7	3.29
Moriches, (L. I.)	Suffolk	Miss S. E. Smith	24, 29	67	3, 4	35	46.7	2.74
Throg's Neck	Westchester	Francis Morris	24	67	5	34	47.3	2.24
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	24	70	5	35	49.5	3.28
South Hartford	Washington	G. M. Ingalsbe	22	72	7	29	45.8	5.75
Flatbush, (L. I.)	Kings	Eli T. Mack	27	65	5	33	46.1	2.35
South Trenton	Oneida	Storrs Barrows	.....	.....	.....	.....	3.50	.....
Jamestown	Chautauqua	Rev. S. W. Roe, M.D.	24	72	28	30	43.7	3.00
Oswego	Oswego	W. S. Malcolm	22	65	27	31	41.6	4.37
Gouverneur	St. Lawrence	Cyrus H. Russell	22, 25	64	19	24	45.4	3.21
Theresa	Jefferson	S. O. Gregory	22	63	27	29	41.4	4.75
Argyle	Washington	George M. Hunt	22	60	4	34	44.5	4.33
Garrison's	Putnam	Thos. B. Arden	23	66	5	31	46.0	3.96
Buffalo	Erie	William Ives	22	71	28	30	43.0	3.22
Rochester	Monroe	Prof. C. Dewey	22	66	28	30	43.2	3.23
Port Ann	Washington	P. A. McMore	16	79	7	43	64.2	6.10
Clinton	Oneida	H. M. Paine, M.D.	22	71	28	32	46.3	2.38
Wilson	Niagara	Dr. E. S. Holmes	26	62	28	32	44.0	.....
New York	New York	Rev. John Aubier	24	73	5	32	47.5	1.97
Schenectady	Schenectady	Robert M. Fuller	22	66	6	32	44.1	3.38
Skaneateles	Onondaga	W. M. Beauchamp	8, 22	60	28	27	41.1	.....

Temperature and rain of April, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.								
Auburn	Cayuga	John B. Dill	8	70	28	28	44.4	.....
Seneca Falls	Seneca	Philo Cowing	23, 24	64	4	30	45.4	.....
NEW JERSEY.								
Newark	Essex	W. A. Whitehead	23	75	5	32	47.1	3.67
Mount Holly	Burlington	M. J. Rhee, M.D.	23, 24	76	4	33	49.5	.....
Burlington	do	John C. Deacon	23, 24	75	4, 5	30	46.7	4.00
Progress	do	Thomas J. Beans	23	75	5	34	48.3	3.33
Passaic Valley	Passaic	Wm. Brooks	23	75	5	33	46.8	5.34
Greenwich	Cumberland	Clarkson Sheppard	24	77	4	36	50.7	3.19
Haddonfield	Camden	James S. Lippencott	24	77	8	36	49.6	2.99
PENNSYLVANIA.								
Nazareth	Northampton	L. E. Ricksecker	23, 24	75	5	32	47.7	.....
Connellsville	Fayette	John Taylor	23	72	29	25	43.6	.....
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	23, 24	75	5	33	49.6	4.48
Fleming	Center	Samuel Brugger	24	81	12	33	46.6	3.56
Canonsburg	Washington	Rev. W. Smith, D. D.	23	75	21	32	45.1	2.64
Tioga	Tioga	E. T. Bentley	27	73	17, 19, 21, 22	32	46.5	4.70
DELAWARE.								
Wilmington	Newcastle	U. D. Hedges, M.D.	24	76	4	33	49.4	7.50
MARYLAND.								
Sykesville	Carroll	Miss H. M. Baer	23	76	2, 4, 5	32	48.9	7.25
Chestertown	Kent	Prof. J. R. Dutton	23	73	4, 5	36	51.2	4.82
St. Mary's city	St. Mary's	Rev. Jas. Stephenson	8	62	2	34	47.8	6.36
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Instit'n.	27	72	2, 4	36	43.0	6.82
SOUTH CAROLINA.								
Hilton Head .....	.....	Maj. Jas. W. Abert	23	94	17	52	66.1	1.89
Beaufort	Beaufort	M. M. Marsh, M. D.	28	90	16	46	61.0	1.49
TENNESSEE.								
Chattanooga	Harrison	George H. Bloker	27	86	3	38	58.3	.....
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	23	78	3, 20	31	51.0	3.07
OHIO.								
College Hill	Hamilton	I. H. Wilson	23	72	19	36	49.8	5.10
Do	do	John W. Hammitt	23	83	13, 28	38	49.6	5.38
Urbana	Champaign	Prof. M. G. Williams	23	75	17	33	46.8	2.51
Welshfield	Geauga	B. F. Abell, A. M.	24	70	28	32	45.2	4.68
Cleveland	Cuyahoga	Mr. and Mrs. Hyde	22	55	2, 21, 28	39	46.6	1.96
Hillsborough	Highland	J. McD. Mathews	23	75	28	33	47.1	3.52
Wooster	Wayne	Martin Winger	24	76	21	34	47.3	.....
Kingston	Ross	Prof. J. Haywood	23	77	19	31	49.4	2.14
Westerville	Franklin	Pf. H. A. Thompson	23	71	16	36	50.0	1.91
Portsmouth	Sciota	L. Engelbrecht	23	76	21	38	51.1	2.83
Eaton	Proble	Ollitippa Larsh	23	71	17, 28	38	47.0	3.82
East Fairfield	Columbiana	S. B. McMillan	23, 24	73	1	34	46.9	2.42
New Lisbon	do	Josiah F. Beener	23	78	21	25	46.9	2.21
Kelley's Island	Erie	Geo. C. Huntington	26	58	1	36	45.0	4.47
MICHIGAN.								
Monroe City	Monroe	Miss F. E. Whelpley	26	65	20	34	45.7	2.90
Lausong	Ingham	Prof. R. C. Kedzie	21, 26	61	18	34	44.3	3.80
Pontiac	Oakland	Jas. A. Weeks	11, 21	60	20, 27, 28	34	44.3	.....
INDIANA.								
Indianapolis	Marion	Royal Mayhew	7, 23	70	3	36	49.3	4.38
Muncie	Delaware	E. J. Rice	23	65	1	32	49.2	4.10
New Albany	Floyd	Dr. E. S. Crozier	23	78	21	34	51.5	1.79
South Bend	St. Joseph	Reuben Burroughs	26	67	16, 20	32	45.5	5.47
Spiceland	Henry	William Dawson	23	70	16	33	47.7	4.50
New Castle	do	Thomas B. Redding	26	74	19	32	49.5	5.18

Temperature and rain of April, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
ILLINOIS.								
Pekin	Tazewell	J. H. Riblett	26	74	6, 11, 20	33	49.1	4.35
Manchester	Scott	Dr. J. & Miss E. Grant	23, 29	73	16	32	49.0	4.35
Hoylton	Washington	J. Ellsworth	7	76	13, 15, 16	36	50.1	7.44
Peoria	Peoria	Frederick Brendel	26	74	13, 14	38	49.5	4.81
Galesburg	Knox	Prof. W. Livingston	26	73	2, 5	36	40.1	4.02
Waverley	Morgan	Timothy Dudley	7	78	16	35	49.2	4.60
Upper Alton	Madison	Mrs. A. C. Triple	7	76	2	36	50.7	.....
Sandwich	De Kalb	N. E. Ballou	26	71	2	32	44.6	3.14
Winnebago	Winnebago	James W. Tolman	26	74	16	33	43.6	2.63
Tishkila	Bureau	Verry Aldrich	7, 26	70	19	32	45.6	.....
Evanston	Cook	Wm. H. Morrison	23	59	16	37	44.4	2.05
Ottawa	La Salle	Mrs. E. H. Mervin	26	80	19	30	44.9	3.04
Augusta	Hancock	S. B. Mead	26	73	2, 13	34	47.0	6.76
WISCONSIN.								
Green Bay	Brown	Fred'k Deckner	21, 26	65	11, 15, 16	30	36.7	2.48
Milwaukee	Milwaukee	I. A. Lapham, L.L.D.	26, 27	61	17	30	.....	3.01
Beloit	Rock	Henry D. W. Porter	26	76	16	33	43.5	2.66
Embarrass	Waupaca	J. Everett Breed	24	68	17	20	40.5	1.70
Madison	Dane	Prof. J. W. Sterling	26	74	9	30	42.0	1.49
Manitowoc	Manitowoc	Jacob Lüps	26	59	16	31	40.8	2.83
MISSOURI.								
Canton	Lewis	George P. Ray	26	83	13, 16	34	48.0	7.43
Harrisonville	Cass	John Christian	26	80	1, 15	36	52.7	6.06
Fox Creek	St. Louis	Wm. Muir	26	79	16	36	52.9	16.1
Athens	Clark	J. T. Caldwell	1	65	5, 6, 11, 13, 20, 30	30	48.9	4.24
IOWA.								
Muscatine	Muscatine	Isaiah P. Walton	26	76	15	30	44.7	3.43
Iowa City	Johnson	T. S. Parvin, A. M.	26	71	13	32	46.1	3.97
Independence	Buchanan	A. C. Wheaton	26	69	2, 5	34	46.2	2.30
Do	do	D. S. Deering	26	68	3	33	45.0	.....
Lyons	Clinton	P. J. Farnsworth, M.D.	26	74	16	36	47.1	4.50
Mount Pleasant	Henry	Rev. E. L. Briggs	26	76	5, 13, 14	34	46.5	4.24
Iowa Falls	Hardin	N. Townsend	25	66	2, 5, 10	30	41.9	4.30
Algona	Kossuth	Dr. and Miss McCoy	25	80	9	32	43.9	2.38
Dubuque	Dubuque	Asa Horr, M. D.	26	72	6	35	46.2	1.16
Fort Madison	Lee	Daniel McCready	26	76	5, 13, 14	32	47.4	5.93
Waterloo	Black Hawk	T. Steed	25	70	2, 5	30	48.0	.....
Onawa	Monona	Rich. Stebbins, M. D.	25	80	15	28	45.0	.....
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	25	71	15	30	42.6	0.56
New Ulm	Brown	Charles Roos	25	78	2	31	45.3	0.22
Beaver Bay	Lake	C. Wieland	22	55	6	27	37.7	0.25
NEBRASKA TER.								
Elkhorn City	Washington	Miss A. M. J. Bowen	25	79	5	28	46.3	.....
Bellevue	Sarpy	Rev. Wm. Hamilton	25	78	2	28	45.2	2.40
KANSAS.								
Manhattan	Riley	H. L. Denison	20, 21	79	5	27	48.3	1.68
Fort Riley	Davis	Elford E. Lee	20	84	1, 4	33	54.3	0.89
Olathe	Johnson	W. Beckwith	20	84	2, 15	26	.....	6.00
COLORADO TER.								
Montgomery	Parke	James Luttrell	18	60	8	8	31.0	5.56
UTAH TER.								
Great Salt Lake City	Great Salt Lake	W. W. Phelps	18	80	3	30	52.8	1.37
IDAHO TER.								
Fort Laramie .....	.....	(Name not given)	19	87	1	20	43.4	.....
Fort Halleck .....	.....	I. H. Finfrock	18	68	6	21	37.6	1.30

Table showing the average temperature and fall of rain (in inches and tenths) for the month of April, for each of the years named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages for 1864.	
		Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	6	38.4	6.38	42.6	2.78	39.0	6.65	39.7	4.15	38.6	3.36	39.7	4.66	37.8	2.80
New Hampshire.....	4	42.2	4.73	44.3	2.20	39.9	6.22	41.0	2.94	36.1	2.73	40.7	3.76	40.1	2.12
Vermont.....	4	40.5	1.61	44.2	1.20	38.7	4.96	40.9	2.23	38.2	2.30	40.5	2.46	40.9	2.55
Massachusetts.....	12	43.6	4.95	45.4	3.23	41.8	7.25	45.1	3.29	42.9	3.46	43.7	4.44	42.2	2.30
Rhode Island.....	1	44.1	2.50	48.8	2.80	41.0	6.29	46.2	3.63	44.2	2.28	44.9	3.50	.....	.....
Connecticut.....	4	44.2	3.31	47.2	3.99	41.1	6.65	44.9	3.75	44.1	3.18	44.3	4.17	45.8	1.82
New York.....	12	44.4	2.72	47.2	2.39	39.1	5.82	45.8	3.26	43.3	4.97	44.0	3.26	45.9	3.52
New Jersey.....	4	49.1	1.85	50.4	2.60	42.8	6.94	48.9	3.95	46.9	5.00	47.6	4.07	48.4	3.75
Pennsylvania.....	19	49.7	2.29	50.2	3.51	41.3	4.13	49.2	3.73	48.4	5.36	47.8	3.81	46.9	4.25
Maryland.....	4	54.7	1.32	52.9	2.90	47.5	3.12	50.9	3.82	50.8	5.11	51.3	3.26	49.3	6.14
District of Columbia.....	1	55.7	.....	54.7	2.68	45.3	2.40	53.4	3.66	52.2	4.69	52.3	3.36	43.0	6.82
South Carolina.....	5	64.9	0.89	64.6	0.63	56.5	2.92	64.2	2.59	62.9	2.48	63.6	1.90	63.5	1.69
Tennessee.....	2	64.9	3.25	59.4	4.18	49.7	5.72	60.1	4.86	57.9	5.79	58.4	4.76	58.3	.....
Kentucky.....	4	60.6	1.63	58.8	1.63	42.2	4.46	56.5	4.72	54.2	5.93	54.4	3.68	51.0	3.07
Ohio.....	20	55.9	2.30	53.2	1.67	40.1	3.01	51.0	4.80	47.8	5.65	49.6	3.49	47.8	3.23
Michigan.....	7	49.2	4.78	45.0	1.87	35.4	2.96	44.7	3.99	40.9	3.47	43.0	3.41	44.5	3.35
Indiana.....	5	57.1	5.02	56.5	0.81	42.1	2.15	53.9	5.19	49.6	5.13	51.9	3.66	48.8	4.24
Illinois.....	13	58.6	2.16	54.8	1.93	38.7	1.56	49.8	5.17	44.9	3.55	49.4	2.87	46.8	4.39
Missouri.....	2	62.2	1.79	60.1	6.35	43.5	1.72	56.2	4.67	51.9	4.89	54.8	3.88	50.6	4.84
Wisconsin.....	9	50.2	2.03	45.7	3.04	35.4	2.45	42.6	4.32	36.0	4.28	42.0	3.22	40.7	2.35
Iowa.....	8	55.6	2.27	51.7	3.33	36.8	1.35	46.5	5.48	37.7	3.34	45.7	3.16	45.7	3.58
Minnesota.....	3	51.9	.....	41.4	4.77	29.8	2.68	39.4	2.92	34.8	2.28	39.5	2.53	41.9	0.34
Nebraska Territory.....	2	.....	.....	.....	.....	.....	.....	48.2	5.05	41.4	1.64	44.8	3.34	45.8	2.40
Kansas.....	3	.....	.....	.....	.....	41.6	0.33	52.5	3.49	50.3	2.67	48.1	2.17	51.3	2.86
California.....	3	.....	.....	58.5	1.19	61.0	0.00	59.7	0.96	55.4	2.49	58.6	1.16	.....	.....

FREEZING AND OPENING OF RIVERS, &c.

- April 2.*—Theresa, New York.—Ice went out of the river.
- April 3.*—Shelburne, New Hampshire.—Ice in Androscoggin river breaking up.
- April 4.*—Lunenburg, Vermont.—Ice cleared out of streams and most ponds.
- April 5.*—Manitowoc, Wisconsin.—Manitowoc river open.
- April 7.*—Embarrass, Wisconsin.—Wolf river open to-day.
- April 7, 8, 9.*—Beaver Bay, Minnesota.—A northeast wind broke up the ice, and moved it towards the west end of the lake (Superior;) 10th, the Lake bay clear of ice; no ice in sight; navigation open.
- April 9.*—Tioga, Pennsylvania.—Frost all out of the ground.
- April 16.*—North Perry, Maine.—Ice in the lake broken up.
- April 16.*—Iowa Falls, Iowa.—While setting some fence-posts to-day, found the ground frozen two inches at the depth of sixteen inches, which would make the depth to which frost has penetrated at least eighteen inches.
- April 21.*—New Albany, Indiana.—White frost this morning, so that words could be written on fences.
- April 23.*—Milwaukee, Wisconsin.—The Bristol arrived, being the first vessel from the lower lakes.
- April 25.*—South Trenton, New York.—Frost out of the ground.
- April 30.*—Beaver Bay, Minnesota.—The mail carrier reported that the flood ice on the western end of Lake Superior extended nine miles from Superior bay.
- April 30.*—Moriches, New York.—The last frost observed was on the morning of the 28th. The ground has not been frozen the past winter to a greater depth than seven inches in this region. We have had a remarkably cold and backward spring, as anticipated when enjoying the fine open weather in January.

APPEARANCE OF BIRDS, FLOWERING OF PLANTS, &c.

- April 1.*—Rutland, Vermont.—First robins seen; 2d, first bluebirds.
- April 1.*—Weyauwega, Wisconsin.—Robins made their first appearance; 2d, purple grackle came to-day; 4th, blue birds came.
- April 2.*—Lansing, Michigan.—Frogs heard.
- April 3.*—Skaneateles, New York.—Crocuses and daffodils in flower.
- April 3.*—Newcastle, Indiana.—Crocus in full bloom.
- April 3.*—Canton, Missouri.—Frogs heard.
- April 3.*—Embarrass, Wisconsin.—First appearance of wild pigeons.
- April 4.*—Craftsbury, Vermont.—Robins first heard this morning.
- April 4.*—Wilson, New York.—A flock of wild geese flew over the village to the northward this morning.
- April 4.*—Augusta, Illinois.—Gooseberry leafing out.
- April 5.*—Pontiac, Michigan.—Lilac buds opening.
- April 5.*—Manitowoc, Wisconsin.—Robins here.
- April 6.*—Shelburne, New Hampshire.—Wild ducks arrived.
- April 7.*—South Trenton, New York.—Maple buds started; 13th, first black birds; 14th, first frogs.
- April 7.*—Muscatine, Iowa.—Martins made their appearance.
- April 7.*—Lyons, Iowa.—Martins first seen; 9th, frogs first heard; 12th, gathered first May flowers—liverworts and sanguinaria.
- April 8.*—Kelley's Island, Ohio.—Crocus in bloom.
- April 8.*—Fort Madison, Iowa.—Gooseberry leaf expands.
- April 10.*—Skaneateles, New York.—Gooseberry buds opened.
- April 10.*—Elkhorn City, Nebraska.—Rhubarb buds; gooseberry leafing.
- April 11.*—Pontiac, Michigan.—Leaf buds of soft maple opening.
- April 11.*—Embarrass, Wisconsin.—Saw blue birds first time.

April 14.—Iowa Falls, Iowa.—Large flocks of cranes passing north ; robins arrived to-day.

April 15.—Shelburne, New Hampshire.—Grass just starting.

April 18.—Westfield, Massachusetts.—Found the trailing arbutus (*Epigaea repens*) in blossom, and heard frogs to-day.

April 19.—Iowa Falls, Iowa.—The brants are passing north in large flocks to-night ; it is not uncommon to see one or two hundred in a flock.

April 20.—Embarrass, Wisconsin.—Wild geese going north to-day ; golden-winged woodpeckers seen.

April 20.—Weyauwega, Wisconsin.—The common house martin arrived this morning.

April 20.—Elkhorh City, Nebraska.—Box elder (pepperidge) putting out leaf.

April 20.—Fox Creek, Missouri.—Very large flocks of cranes going north-west. First strawberry bloom open.

April 21.—Lisbon, Maine.—Frogs heard for the first time.

April 21.—North Littleton, New Hampshire.—Heard the frogs for the first time this season.

April 21.—Craftsbury, Vermont.—Frogs first heard this evening.

April 22.—Skaneateles, New York.—Antwerp and flowering currants broken bud.

April 22.—Pontiac Michigan.—Martins appeared ; currant leaf buds opening ; 26th, horse-chestnut leafing.

April 24.—Shelburne, New Hampshire.—Woodchucks out ; lilacs leafing.

April 24.—Lunenburg, Vermont.—Martins returned.

April 24.—Silver Spring, Pennsylvania.—Peach trees in bloom.

April 25.—Fleming, Pennsylvania.—Heard the first whippoorwill of this season.

April 26.—Mount Pleasant, Iowa.—Saw the first house martins to-day.

April 27.—Mendon, Massachusetts.—An unusual quantity of wild geese have passed the present spring.

April 27.—South Hartford, New York.—The adder tongue and wood violet first observed ; 28th, 29th, the common willow is in blossom, and the maple buds are opening.

April 27.—Augusta, Illinois.—Pear tree buds just putting out ; apple tree beginning to leaf out.

April 27.—Fort Madison, Iowa.—Serviceberry and crab apple leaf expand.

April 29.—Green Bay, Wisconsin.—Buds of the common red currant bushes began to start vigorously.

April 30.—Shelburne, New Hampshire.—A large black bear crossed the pasture, some fifty rods back of the house, this morning.

April 30.—Fleming, Pennsylvania.—Peach blossoms beginning to open in favorable localities.

April 30.—Hillsborough, Ohio.—Some pear, apple, and cherry blossoms are out, but not fully.

April 30.—Mount Pleasant, Iowa.—Spring wheat and oats have come up finely. Hyacinths have been in bloom nearly a week. Currants and gooseberries have begun to show their bloom. Apple trees, cherry, plum, and pears, are showing abundance of buds, but none have opened as yet. Peaches are all killed. Stock is beginning to live on the grass of the prairies ; those pastures afford grass in abundance.

New Bedford, Massachusetts.—April 14, frogs begin to be heard ; 15th, house martins arrived ; 16th, robins quite numerous ; 22d, lilacs begin to show the green of their leaflets ; 24th, blossoms of the white poplar falling ; 25th, some lawns show a bright green, and horse-chestnut buds begin to open ; 27th, willows and early shrubs begin to have a tinge of green in the distance ; 28th, early flowering magnolias in the warmest exposures begin to show their

beautiful flowers; 29th, blossoms of the elm and maple begin to fall; 30th, grass plats assume a rich green color.

North Argyle, New York.—April 7, first croaking of frogs; 15th, *Alnus glaucus* (tag elder) in bloom; 19th, *Ulmus americana pendula* (white elm) in bloom; 25th, *Acer rubrum* (soft maple) in bloom; 29th, *Pyrus communis* (common pear) leafing.

Newark, New Jersey.—On the 28th the plums and peaches began to put forth, followed by the cherries on the 29th and 30th; but the month closed without either being universally in full bloom, and with the leaves of the horse-chestnuts and maples just developed. This floral display is a day or two in advance of the similar phenomena in 1862 and 1863, but is a full week later than in several preceding years.

Haddonfield, New Jersey.—April 20, not a cherry, pear, apple, or peach blossom yet expanded; 23d, peach trees in bloom; 24th, strawberry, apple, and late heath peach leafing; 30th, peaches, plums, and many dwarf pears in full bloom; all the apple trees in early leaf, and pear leaves opening.

Canonsburg, Pennsylvania.—April 5, aspen tree flowering; 6th, Missouri currant and gooseberry leafing; 14th, martins arrived; 20th, raspberry leafing; 21st, frogs heard; 22d, lilac and currant leafing; killdeer arrived; 23d, mock orange leafing; swallows arrived; 24th, crab apple and willow leafing; 25th, cherry leafing; 26th, apple and quince leafing; 29th, gooseberry flowering, peach leafing.

Byberry, Pennsylvania.—In flower April 13, *Saxifraga virginiana*, *Claytonia virginica*, *Hepatica triloba*, *Chrysosplenium americanum*, *Narcissus pseudonarcissus*, *Sanguinaria canadensis*, *Luzula campestris*, *Antennaria plantaginifolia*, *Carex nova angla*, and variety *Emmonsii*; 14th, *Taraxacum densleonis*, and *Vinea minor*; 17th, *Anemone nemorosa*, *Epigea repens*, *Caltha palustris*, *Benzoin odiferum*, *Erythronium americanum*, *Ulmus americana*, and *Hamamelis virginiana*; 19th, *Ribes grossularia*; 21st, *Viola cucullata*; 22d, *Populus graeca*, dilatata and alba, *Amygdalus persica*, *Helleborus viridis*, and *Tussillago farefara*; 25th, *Veronica hederifolia*, *Potentilla canadensis*, *Ranunculus abortivus*, *Thalictrum anemonoides*, *Veronica peregrina*, *Carex stricta*, *Prunus avium*, and *Equisetum arvense*; 26th, *Ribes aureum*; 30th, *Anemone nemorosa* and variety *quinquefolia*, *Viola blanda*, *Salix babylonica*, *Salix alba*, variety *vitellina*, *Potentilla canadensis*, *Viola sagittata*, *Phlox subulata*, and *Narcissus poeticus*.

17th, swallow (*Hirundo horreorum*) arrived; pewees and song sparrows building; 23d, field plover (*Actiturus bartramius*) seen; 25th, night heron (*Nycticardea gardeni*) seen; 26th, chimney swallow (*Chaetura pelagica*) arrived.

Sykesville, Maryland.—April 6, English mocking bird arrived; 10th, hyacinth in full bloom; 18th, kingfisher arrived; 22d, peach trees in bloom; 24th, yellowhammer arrived; 28th, whippoorwill arrived; 30th, wrens arrived.

Chattanooga, Tennessee.—April 1, apple trees in bloom on warm exposures; grass on the river flats changing from brown to green; 5th, apple trees leafing; shepherd's purse in full bloom; 6th, Lombardy poplar in leaf; 11th, stock turned out on the flats to feed; 13th, return of chimney birds; mountain violet in bloom; 15th, vegetation progressing very slowly; 18th, dwarf ranunculus in bloom; 19th, dogwood in bloom; 22d, buds of forest trees bursting into leaf; 26th, the mountain tops changing color; whippoorwill returned.

New Albany, Indiana.—First appearance of the purple martin, (*Progne purpurea*;) 9th, weeping willow putting out green leaves; 11th, found in the woods to-day common blue violet (*Viola cucullata*) in bloom; also the shad bush, (*Amalanchier canadensis*;) peach trees in bloom; 16th, cherry and pear trees in bloom; 20th, plum trees in bloom; 24th, apple trees in bloom.

Spiceland, Indiana.—April 30.—There is generally some corn planted a week or more before this time, but there is hardly any yet. Wheat and grass have grown considerably, and look well. Apple trees leafing a little. No appear-

ance of forest leaves. In 1835 woods began to look green about April 20; in 1856, April 25; in 1857, May 8; in 1858, May 21, woods quite green, and apple trees in bloom; in 1859, April 25; in 1860, April 10; in 1861, April 25; in 1862, April 26.

THUNDER-STORMS AND DISTANT LIGHTNING.

April 3.—At Chattanooga, Tennessee.

April 5.—At Olatha, Kansas.

April 6.—At Fort Riley, Manhattan, Kansas; Elk Horn City, Nebraska.

April 7.—In Illinois and Iowa.

April 8.—In Ohio, Indiana, and Illinois.

April 12.—At Beaufort, South Carolina.

April 18.—At Beaufort, South Carolina.

April 21.—At Harrisonville, Missouri.

April 22.—At Harrisonville, Missouri.

April 23.—In Vermont, New York, Pennsylvania.

April 25.—At Silver Spring, Tioga, Cannonsburg, Pennsylvania.

April 26.—At Garrisons, New York; Manchester, Illinois; Harrisonville, Missouri; Fort Riley, Kansas.

April 27.—Progress, New Jersey; Philadelphia, Nazareth, Pennsylvania; Allentown, Harrisonville, Fox Creek, Missouri.

April 28.—At Manchester, Illinois.

April 30.—At Nazareth, Pennsylvania; Chattanooga, Tennessee.

MISCELLANEOUS.

Sandwich, Massachusetts.—April 14.—The wind changed to southwest at 3.30 p. m., thus ending a northeast storm, or succession of storms, of twenty days' duration, during which time the wind had not a particle of south in it. It has been due east once or twice, and also twice W.N.W., and only this morning is said to have been due west; but I cannot record this from my own observation. During this period, in the course of fifteen days, including two days of March, I have registered the thermometer sixteen different times at precisely 38° , showing a remarkable uniformity of temperature. From March 25 to April 14, inclusive, the entire range of the thermometer was but 13.5° , and with the exception of one instance but 10° .

Westfield, Massachusetts.—The range of the thermometer has been much less than usual for April.

Moriches, Long Island, New York.—April 4.—The tides for some days here have been unprecedented in character, since we have observed, nine years. The nearest inlet, Fire Island, is thirty miles west. An easterly wind causes low tides in the river and bay, and a west wind, by driving the waters east, causes high tide for days, the variation being but about three feet from one extreme to the other. To-day, April 4, contrary to all precedent within our knowledge, the wind is east, and has been easterly, or northeasterly, for several days, yet the tide has been very high all day. Hence we infer that the storm on the Atlantic has been one of unusual severity. April 6.—The tides have fallen two feet since the 4th; quite low at sunset. The variation is seldom more than two and a half feet, ordinarily but a few inches, and that depends on the wind.

Pomfret, Connecticut.—The temperature of April was 2.33° below the mean of the last ten years. The last two weeks of March, and the first two weeks of April, were marked by a constant and strong northeast wind—rough, unhealthy, searching every bone of the infirm.

North Argyle, New York.—Last snow of winter disappeared April 21.

Waverly, Illinois.—April 23.—A northeast storm set in at 2.20 a. m., and continued, with slight intermission, nearly two days. These northeasters, though common in the Atlantic States, are very seldom witnessed in the west. I have no recollection of one of the kind for ten years. Two and a quarter inches of rain fell during the storm, with a strong wind most of the time. After the rain the wind was from the southwest.

Milwaukee, Wisconsin.—A remarkable current of warm air, 9 a. m. April 26. Damage done to shipping on the lakes on the 27th.

Lyons, Iowa.—April 30.—A cold, backward month, with many rainy days. Farmers waiting for warm weather before planting corn. Wheat sown and looking well; grass backward.

Beaver Bay, Minnesota.—The water at present (April 30) is lower than I have noticed since December, 1859.

Bellevue, Nebraska.—April 30.—Spring is very backward; scarcely any pasture. Leaves beginning to put forth; a few early plums putting forth. North winds are so prevalent that vegetation comes on very slowly.

Vineland, Utah.—April 3, at half past one p. m. a heavy whirlwind from southeast; 18th, this day there has been a succession of whirlwinds carrying straw and litter up into the air; 19th, whirlwinds, whirling the sand and dirt high into the air, the course from southeast to northwest; 27th, to-day at 2 o'clock p. m. a whirlwind passed from the southwest at the rate of six miles an hour; it carried up sticks, straws, leaves, newspapers, hats, clothes, and dust, and formed a column a quarter of a mile high, of an oval form.

From the Deseret News, Great Salt Lake City, Utah.—April 27.—The reports from the road east of this represent the storms for some weeks back to have been exceedingly trying to human and brute nerve. For seventeen days the storm is said to have raged fearfully. The quadrupeds, with the best of precaution and good driving, would at times get beyond their depth in the snow and flounder and splurge in their own tracks till assisted out again by the passengers. With a continuation of the present drying weather, the roads will soon be good again, and schedule time made by the stages.

From the same paper.—We are now in all the glory of a lovely spring. In a week or two more, if only favored with a little more rain, our city will, to the visiting stranger, in whichever direction he may first behold it, be a gem of beauty.

MAY.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for May, 1864, at the following places, as given by the observers named. The daily observations were made at 7 o'clock a. m. and 2 and 9 p. m.

TEMPERATURE AND RAIN OF MAY, 1864.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Cornishville.....	York.....	G. W. Guptill.....	31	82	3	36	54.9	2.65
West Waterville.....	Kennebec.....	B. F. Wilbur.....	31	75	3	42	55.8	3.05
Gardiner.....	do.....	Rev. F. Gardiner.....	31	83	3	40	54.6	3.94
Williamsburg.....	Piscataquis.....	Edwin Pitman.....	6	75	3	38	53.2	5.07
Lisbon.....	Androscoggin.....	Asa P. Moore.....	31	84	3	39	54.4	3.70
North Perry.....	Washington.....	Wm. D. Dana.....	17	74	3	38	50.7	2.59
Steuben.....	do.....	J. D. Parker.....	23, 31	71	3	35	50.0	3.30
NEW HAMPSHIRE.								
Claremont.....	Sullivan.....	Arthur Chase.....	31	86	3	36	59.0	3.14
Strafford.....	Coos.....	Branch Brown.....	6, 16	77	3	36	54.3	4.75
North Littleton.....	Grafton.....	Rufus Smith.....	6, 10	74	4	32	51.3	4.86
VERMONT.								
Lunenburg.....	Essex.....	Hiram A. Cutting.....	16	88	6	31	55.5	6.85
Burlington.....	Chittenden.....	Rev. McK. Petty.....	6	78	11	34	56.1	3.13
Brandon.....	Rutland.....	David Buckland.....	21	84	11	37	59.8	2.96
Middlebury.....	Addison.....	H. A. Sheldon.....	31	86	2, 11	38	59.3	2.72
Craftsbury.....	Orleans.....	James A. Paddock.....	6	75	11	34	53.4	4.10
Calais.....	Washington.....	James K. Tobey.....	9	80	11	33	53.6	.....
MASSACHUSETTS.								
New Bedford.....	Bristol.....	Samuel Rodman.....	31	80	3	43	58.5	2.81
Springfield.....	Hampden.....	J. Weatherhead.....	31	93	2	32	59.3	2.87
Westfield.....	do.....	Rev. E. Davis.....	31	86	3	39	50.6	2.94
Amherst.....	Hampshire.....	Prof. E. S. Snell.....	31	86	3	40	60.4	2.54
Mendon.....	Worcester.....	John G. Metcalf.....	31	84	3	38	57.9	.....
Newbury.....	Essex.....	John H. Caldwell.....	31	86	3	41	56.2	0.58
CONNECTICUT.								
Middletown.....	Middlesex.....	Prof. Jno. Johnston.....	31	91	3	43	62.6	3.82
Pomfret.....	Windham.....	Rev. D. Hunt.....	31	81	3	37	57.8	2.73
NEW YORK.								
Palmira.....	Wayne.....	Stephen Hyde.....	21	83	3	40	61.1	.....
South Trenton.....	Oneida.....	Storrs Barrows.....	.....	.....	.....	.....	.....	3.88
Clinton.....	do.....	H. M. Paine, M. D.....	6	86	1	40	63.8	3.73
Flatbush.....	Kings.....	Eli T. Mack.....	9	87	2	40	61.5	3.00
Deaf & Dumb Inst.....	New York city.....	Prof. O. W. Morris.....	31	86	3	47	63.6	5.24
St. Xavier's Coll.....	do.....	Rev. Jno. M. Aubier.....	31	85	3	43	63.2	3.79
Skaneateles.....	Onondaga.....	W. M. Beauchamp.....	6	82	3	35	57.8	.....
North Argyle.....	Washington.....	George M. Hunt.....	6	81	11	40	52.6	2.53
South Hartford.....	do.....	G. M. Ingalsbe.....	31	88	11	37	64.6	4.28
Fort Ann.....	do.....	P. A. McMore.....	26	84	2	50	63.5	.....
Oswego.....	Oswego.....	Wm. S. Malcolm.....	15, 25	76	3	34	55.8	6.73
Gouverneur.....	St. Lawrence.....	C. H. Russell.....	6	76	1	34	56.7	3.27
Garrison.....	Putnam.....	Thos. B. Arden.....	31	84	2	41	62.0	3.10
Buffalo.....	Erie.....	Wm. Ives.....	15	86	10	35	57.0	6.32
Wilson.....	Niagara.....	E. S. Holmes, DD.S.....	24, 31	81	2, 10, 11	41	58.0	.....
Schenectady.....	Schenectady.....	Robert M. Fuller.....	31	85	23	41	63.3	.....
Fishkill Landing.....	Dutchess.....	Wm. H. Denning.....	31	85	3	45	64.6	3.14
Auburn.....	Cayuga.....	John B. Dill.....	6, 24, 31	86	3, 11	36	61.4	.....
Seneca Falls.....	Seneca.....	Philo Cowing.....	21	90	3	37	63.8	.....
Theresa.....	Jefferson.....	S. O. Gregory.....	16	82	10, 11	37	55.0	8.00
Throg's Neck.....	Westchester.....	Francis Morris.....	31	83	3	43	62.1	3.80
Rochester.....	Monroe.....	Dr. M. M. Mathews.....	21, 24	82	3	37	62.7	6.54

Temperature and rain of May, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW JERSEY.								
Newark	Essex	W. A. Whitehead	31	82	1	39	62.0	5.28
Burlington	Burlington	John C. Deacon	10	86	2, 3, 4	44	65.6	6.40
Progress	do	Thos. J. Beans	8	86	3	45	64.5	6.81
Passaic Valley	Passaic	William Brooks	21	90	2	40	63.9	8.55
Greenwich	Cumberland	Clarkson Sheppard	8	87	3	46	66.6	4.43
Haddonfield	Camden	Jas. S. Lippencott	10	85	3	48	65.8	7.09
PENNSYLVANIA.								
Harrisburg	Dauphin	Dr. John Heiseley	8, 31	86	3	44	66.7	5.36
Tioga	Tioga	E. T. Bentley	21	90	2	36	63.4	10.02
Silver Spring	Lancaster	H. G. Bruckhart	9	90	2	40	66.0	-----
Nazareth	Northampton	L. E. Ricksecker	8, 9, 10, 21, 31	86	3	42	65.0	-----
Williamsport	Lycoming	H. C. Moyer	24	81	11	41	62.5	-----
Fallsington	Bucks	E. Hance	8, 9, 10, 31	84	3	44	65.7	6.20
Fleming	Center	Samuel Brugger	24	93	1, 2, 3	40	63.1	6.74
Canonsburg	Washington	Rev. W. Smith, D.D.	24	82	3	35	60.2	2.34
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick.	31	86	3	47	67.0	9.04
MARYLAND.								
Sykesville	Carroll	Miss Harriott M. Baer.	24	86	2, 3	45	65.9	8.50
Union Bridge	do	W. Gillingham	24	88	2	45	66.9	10.06
Chestertown	Kent	Prof. J. R. Dutton	8, 31	86	2	44	68.0	3.39
St. Mary's City	St. Mary's	Rev. J. Stephenson	31	90	-----	-----	70.8	2.83
DELAWARE.								
Wilmington	Newcastle	U. D. Hedges, M. D.	8, 9	88	3	43	66.5	9.80
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Inst'n.	8, 10, 31	84	2	45	68.0	4.62
SOUTH CAROLINA.								
Beaufort	Beaufort	M. M. Marsh, M. D.	23	94	3	52	70.0	3.56
Hilton Head	-----	Lt. Chas. R. Suter	27	94	3	53	74.1	4.70
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	23	89	3, 4	33	63.5	4.18
OHIO.								
Wooster	Wayne	Martin Winger	31	87	11	33	62.1	-----
New Lisbon	Columbiana	J. F. Benner	6	88	2, 3	40	62.9	3.14
East Fairfield	do	S. B. McMillan	21, 23	83	3	38	61.0	2.67
Portsmouth	Sciota	L. Engelbrecht	22	85	2, 11	42	64.2	2.63
College Hill	Hamilton	I. H. Wilson	22	84	11	35	63.6	2.21
do	do	John W. Hammitt	23	88	11	35	65.1	4.00
Cincinnati	do	G. W. Harper	21, 22	87	11	33	64.0	2.34
Steubenville	Jefferson	R. Marsh	-----	87	-----	38	-----	3.40
Welshfield	Geauga	B. F. Abell, A. M.	20	87	3	33	60.2	4.42
Kelley's Island	Erie	Geo. C. Huntington	31	81	2	37	60.0	4.04
Kingston	Ross	Prof. Jno. Haywood	22, 23	88	2	39	63.2	2.82
Toledo	Lucas	L. B. Trembly, M. D.	31	90	14	37	63.2	2.19
Cleveland	Cuyahoga	G. A. Hyde	23, 31	86	3	39	60.3	3.57
Hillsborough	Highland	J. McD. Mathews	22	87	3	36	60.0	4.00
Westerville	Franklin	Pf. H. A. Thompson	23	85	11	35	65.2	2.98
MICHIGAN.								
Monroe City	Monroe	Miss F. E. Whelpley	31	86	10	36	61.6	2.95
Lansing	Ingham	Prof. R. C. Kedzie	20	84	3	34	54.0	2.87
Pontiac	Oakland	James A. Weeks	31	86	11	32	59.1	-----
Ypsilanti	Washtenaw	C. S. Woodard	23	87	11	35	59.5	3.21
INDIANA.								
Bloomington	Park	Wm. Henry Hobbs	21	90	2, 3	38	58.8	-----
New Harmony	Posey	Jno. Chappellsmith	22	88	2, 10	44	66.5	1.98
Spiceland	Henry	William Dawson	22	91	2	34	64.3	2.80
New Albany	Floyd	Dr. E. S. Crozier	23	88	3	39	63.6	2.72
Pennville	Jay	Miss Miriam Griest	7, 21, 22, 23, 30, 31	88	3	34	67.7	-----

Temperature and rain of May, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
ILLINOIS.								
Peoria.....	Peoria.....	Frederick Brendel..	20	92		39	66.4	1.88
Manchester.....	Scott.....	Dr. J. & Miss E. Grant	21	91	2	33	65.0	2.02
Augusta.....	Hancock.....	S. B. Mead.....	22	87	2	35	64.0	2.16
Galesburg.....	Knox.....	Prof. W. Livingston..	22	86	2	37	63.7	1.80
Tiskilwa.....	Bureau.....	Verry Aldrich.....	22	92	3, 11	34	61.6	.....
Du Quoin.....	Perry.....	Charles Zeigler.....	21, 22	94	3	32	63.3	1.60
Hoyleton.....	Washington.....	J. Ellsworth.....	21, 22	96	2	39	65.9	1.25
Pekin City.....	Tazewell.....	J. H. Riblett.....	20	91	2	38	65.5	1.81
Waverly.....	Morgan.....	Timothy Dudley.....	20, 22	90	2	38	64.2	1.25
Winnebago.....	Winnebago.....	J. W. Tolman.....	20, 21, 22, 30	90	2	35	61.8	1.46
Ottawa.....	La Salle.....	Mrs. E. H. Merwin..	22	95		36	63.0	1.79
Chicago.....	Cook.....	A. Byrne.....	30	78	11	38	58.7	.....
Sandwich.....	De Kalb.....	N. E. Ballou.....	22, 30	90	2, 10	36	61.7	2.72
WISCONSIN.								
Green Bay.....	Brown.....	Frederick Deckner..	30	92	3	31	56.7	1.08
Milwaukee.....	Milwaukee.....	I. A. Lapham, LL.D.	21	68	2, 7	46	55.2	2.74
Weyanwega.....	Waupaca.....	Wm. Woods.....	21	96	2, 10	32	58.7	.....
Embarrass.....	.....	J. Everett Breed.....	30	98	2, 3	25	56.2	2.58
Manitowoc.....	Manitowoc.....	Jacob Lups.....	30	92	2	31	54.7	1.32
Superior.....	Douglas.....	.....	21	92	13	25	48.7	1.24
MINNESOTA.								
St. Paul.....	Ramsey.....	Rev. A. B. Paterson..	21	88	10	32	59.0	0.47
New Ulm.....	Brown.....	Charles Roos.....	21	92	10	35	62.7	1.00
IOWA.								
Independence.....	Buchanan.....	A. C. Wheaton.....	21, 30	90	2	35	63.0	4.10
Do.....	.....	D. S. Deering.....	20, 22	89	10	34	62.5	.....
Lyons.....	Clinton.....	Dr. P. J. Farnsworth	21	90	2	34	62.7	3.50
Mount Pleasant.....	Henry.....	Rev. E. L. Briggs....	31	90	2	36	63.8	3.20
Muscatine.....	Muscatine.....	I. P. Walton.....	30	90	2	34	56.1	3.39
Iowa City.....	Johnson.....	Theo. S. Parvin, A.M.	29, 30	90	2	32	62.2	3.60
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	30	91	10	37	63.7	2.50
Onawa.....	Monona.....	Rich. Stebbins, M.D.	28, 29	90	1, 2	38	60.2	.....
Algona.....	Kossuth.....	Dr. F. & Miss L. McCoy	30	92	10	32	59.9	1.75
Fort Madison.....	Lee.....	Daniel McCready.....	21	91	2	34	64.7	2.43
Muncie.....	Delaware.....	E. J. Rice.....	22	90	2	36	64.1	1.15
Iowa Falls.....	Hardin.....	Nathan Townsend....	29	87	10	37	59.7	3.50
Pleasant Plain.....	Jefferson.....	T. McConnel.....	20	96	2	34	64.2	4.10
MISSOURI.								
Canton.....	Lewis.....	George P. Ray.....	21	96	2	37	66.8	2.07
Fox Creek.....	St. Louis.....	William Muir.....	21	92	2	40	68.9	7.06
Harrisonville.....	Cass.....	John Christian.....	22	90	2	46	70.6	2.97
Athens.....	Clark.....	J. T. Caldwell.....	22	91	7	25	61.2	.....
Allenton.....	St. Louis.....	A. Fendler.....	22	97	2	38	65.7	.....
KANSAS.								
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton..	29	88	11	32	60.6	1.32
Manhattan.....	Riley.....	H. L. Denison.....	30	89	2, 3	32	64.8	2.29
Fort Riley.....	Davis.....	Elford E. Lee.....	29, 30	90	10	40	70.8	0.95
NEBRASKA TER.								
Elkhorn City.....	Washington.....	Miss A. M. J. Bowen..	29	94	10	33	63.6	.....

Table showing the average temperature and fall of rain (in inches and tenths) for the month of May, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Ter.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
		Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.	Mean, ther.	Mean, rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine...	6	49.7	3.4	49.6	5.7	51.7	4.1	50.1	3.5	54.7	3.5	51.1	4.1	54.5	3.0	53.4	3.47
N. H....	3	54.7	1.1	52.4	4.6	54.5	6.0	51.7	3.6	51.2	2.2	52.9	3.5	55.8	4.5	54.9	4.25
Vermont.	4	54.2	0.2	51.7	3.0	52.1	4.8	52.3	3.3	57.9	1.8	53.8	2.6	55.6	5.6	56.3	3.95
Mass. ...	12	55.1	2.9	52.4	6.3	54.6	5.2	52.8	3.1	57.6	4.8	54.5	4.5	57.6	3.2	58.7	2.35
R. Island	1	54.3	2.6	53.5	4.1	51.8	4.3	53.4	2.4	56.9	3.4	54.0	3.4	.....	.....	.....	.....
Conn....	4	55.3	2.2	53.1	5.5	54.1	5.2	53.1	2.8	57.5	4.0	54.6	4.0	58.2	3.7	60.2	3.28
N. York.	17	56.7	2.8	54.0	3.3	53.9	4.6	54.1	4.4	61.5	2.8	56.0	3.6	58.0	3.7	61.0	4.62
N. Jersey	4	60.2	2.7	57.3	4.0	56.6	8.1	55.4	4.7	60.6	1.8	58.0	4.2	61.3	2.7	64.7	6.43
Penn....	19	61.1	3.0	58.5	2.8	57.7	6.6	57.8	7.4	64.3	2.1	59.9	4.4	60.8	2.5	64.1	6.62
Maryl'd.	4	64.0	2.6	62.1	3.5	61.8	6.3	59.0	6.7	64.1	3.5	62.2	4.5	63.5	4.3	67.9	6.19
Dist. Col.	1	64.2	1.4	55.3	4.2	61.3	5.7	60.9	7.3	64.8	3.9	61.3	4.5	60.0	3.8	68.0	4.62
S. C.....	6	72.8	4.3	70.8	4.2	69.5	2.4	72.2	2.8	70.2	2.5	71.1	3.2	.....	.....	72.0	4.13
Tenn. ...	2	67.5	3.9	63.7	6.3	64.0	5.4	67.4	6.1	69.2	2.5	66.4	4.8	.....	.....	.....	.....
Kentucky	4	66.2	3.1	64.1	2.5	59.3	6.2	64.4	6.4	69.0	1.7	64.6	4.0	.....	.....	63.5	4.18
Ohio	20	62.4	3.8	60.3	2.9	55.3	5.0	58.8	7.3	65.5	2.6	60.4	4.3	62.6	2.3	62.5	3.17
Michigan	7	59.1	1.5	52.9	3.9	52.1	3.3	52.3	6.1	56.9	2.9	54.6	3.5	61.8	.....	58.6	2.71
Indiana.	5	64.5	3.5	61.9	3.0	57.4	4.4	60.7	8.9	67.1	2.2	62.3	4.4	64.5	3.0	64.2	2.50
Illinois ..	13	64.1	5.1	61.0	4.4	56.5	2.9	58.2	8.1	63.3	4.3	60.6	5.9	59.1	3.4	63.4	1.79
Missouri.	2	66.8	7.2	62.1	3.0	59.2	3.1	64.0	10.6	68.2	6.6	64.1	5.4	55.3	2.4	66.6	4.01
Wisconsin	6	60.3	3.1	55.0	3.5	50.4	4.1	52.1	6.8	56.8	4.3	54.9	4.5	56.7	3.9	55.0	1.79
Iowa.....	9	62.9	3.2	60.8	3.5	56.2	7.3	55.7	7.3	63.2	5.4	59.8	5.3	62.7	3.6	61.3	3.02
Minnesota	3	60.9	.....	58.9	4.2	52.4	2.8	51.7	2.8	53.5	5.6	55.5	3.8	57.3	1.9	60.8	0.74
Neb. T. ...	3	.....	.....	.....	.....	.....	.....	53.1	4.4	64.6	5.6	58.6	5.0	63.4	.....	63.6	.....
Kansas...	3	.....	.....	.....	.....	55.8	2.7	61.7	5.2	66.6	8.0	60.7	5.2	69.5	4.9	65.4	1.52
Utah T. ...	1	.....	.....	.....	.....	58.0	0.8	.....	.....	57.3	1.9	57.7	1.3	.....	.....	.....	.....
Californa.	2	.....	.....	61.9	1.9	63.6	.....	62.3	0.2	63.0	1.3	62.7	1.1	.....	.....	.....	.....

ICE, FROST. AND SNOW.

May 1.—Garrisons, New York.—The last frost this month was on the first.

May 1.—Mount Pleasant, Iowa.—Turned quite chilly at dark, and rain mingled with snow; 2d, slight frost, snow, and rain; formed considerable ice in the night; 3d, slight frost again, but not enough to kill potato vines.

May 2.—Progress, New Jersey.—Heavy white frost; thermometer at sunrise, 37°.

May 2.—College Hill, Ohio.—A snow-storm began at half past ten a. m. melted as it fell.

May 2.—Kingston, Ohio.—A few flakes of snow fell to-day; 3d and 4th, a slight frost.

May 2, 3.—Welshfield, Ohio.—At 3 a. m. of the 2d it began to rain, wind northeast; about 4 p. m., wind northwest, it changed to snow, which continued falling till 3½ p. m. of the 3d, when it was about eight inches deep. A cold driving rain followed this for about three hours, when the storm, as a whole, abated. This storm, during the last thirty-six hours of its progress, was exceedingly severe, and considerable damage was done among flocks of sheep, especially those not sheltered, by killing the lambs.

May 2.—Muncie, Indiana.—Snow one inch deep.

May 2.—Ottawa, Illinois.—Very slight frost.

May 2.—Canton, Missouri.—A hard frost; 3d, slight frost.

May 2.—Manhattan, Kansas.—Ice a quarter of an inch thick.

May 2.—Weyanwega, Wisconsin.—There was quite a flurry of snow this morning. Ice froze an eighth of an inch thick.

May 2.—Embarrass, Wisconsin.—Snow from 5.30 to 7 a. m.; 3d, hard frost.

May 2.—Pleasant Plain, Iowa.—Frost and ice this morning.

May 2.—Fort Madison, Iowa.—Frost this morning.

May 2, 3.—Muscatine, Iowa.—Ice on both these mornings.

May 3.—Palmyra, New York.—The ground white with snow at 7 a. m.

May 3.—Sandwich, Illinois.—White frost.

May 3.—Milwaukee, Wisconsin.—Ice and hoar frost this morning.

May 3.—New Ulm, Minnesota.—Ice sixteenth of an inch thick.

May 5.—Cannonsburg, Pennsylvania.—Frost in the morning.

May 5.—New Lisbon, Ohio.—Hard frost.

May 9.—Sandwich, Illinois.—White frost. Ice formed an eighth of an inch thick.

May 10.—Fort Riley, Kansas.—Light frost this morning on low land; ice an eighth of an inch thick reported in places on the creek.

May 10.—Weyauwega, Wisconsin.—The ground was frozen quite hard this morning; 11th, heavy hoar frost this morning.

May 10, 13, 14.—Embarrass, Wisconsin.—Hard frost.

May 10.—Dubuque, Iowa.—Abundant white frost in the morning.

May 10.—Independence, Iowa.—Thin ice formed in the morning; 11th, ground froze half an inch deep.

May 10.—Lyons, Iowa.—Wind came up about twelve o'clock last night, blowing a gale from the north, and very cold; 11th, a little rain; a severe white frost in the morning, doing some injury to the gardens and to cherries.

May 10.—New Ulm, Minnesota.—Ice three-eighths of an inch in thickness.

May 11.—Kingston, Ohio.—Snow fell this morning; 12th, a slight frost.

May 11.—Fox Creek, Missouri.—Quite a severe frost, killing grape shoots, potato vines, beans, tomatoes, &c.; thermometer, at 5 a. m., 34°; at 7 a. m., 46°.

May 11.—Allenton, Missouri.—Severe white frost; temperature, at 5 a. m., 33°.

- May 11.*—Canton, Missouri.—Hard frost, ice formed; 12th, light frost.
- May 11.*—Manhattan, Kansas.—Frost this morning.
- May 11.*—Richland, Nebraska.—A little white frost.
- May 11.*—Pleasant Plain, Iowa.—Frost and ice this morning.
- May 11.*—Mount Pleasant, Iowa.—Considerable frost in low places; at sunrise thermometer, one foot from the ground, 30°; seven feet from the ground, 32°.
- May 11.*—Muscatine, Iowa.—Frost enough to make the grass look white, but no damage done; thermometer, at 5 a. m., 30°; ice formed in the water bucket.
- May 11.*—Iowa City, Iowa.—Frost, but not severe enough to do damage.
- May 12.*—Welshfield, Ohio.—A sharp frost.
- May 12.*—Hillsborough, Ohio.—Some frost.
- May 12.*—Kelley's Island, Ohio.—Frost reported on some exposures back from the lake, but no indications of any found at this place of observation.
- May 12.*—Spiceland, Indiana.—Some frost; no injury from it.
- May 13.*—Winnebago, Illinois.—Heavy frost this morning; thermometer, at sunrise, 29°.
- May 13.*—Iowa Falls, Iowa.—Considerable frost this morning.
- May 23.*—Steuben, Maine.—Heavy frost this morning.
- May 23.*—Williamsburg, Maine.—White frost this morning.
- May 23.*—Stratford, N. H.—Hard frost this morning.
- May 26 and 29.*—North Littleton, N. H.—Hoar frost, doing no damage.
- May 28.*—Clinton, New York.—Slight frost; vegetation uninjured.
- May 28.*—Cannonsburg, Pennsylvania.—Frost at night.
- May 28.*—Weyauwega, Wisconsin.—Quite a heavy frost last night; hurt vegetation somewhat.
- May 28.*—Manitowoc, Wisconsin.—Thermometer 34° at 5 a. m.; some young hoots of grape vines killed.

MISCELLANEOUS.

May 14.—Wilson, New York.—The excessive rains of late and yesterday produced freshets in all this region, carrying away fences, sluices, culverts, bridges, mills, &c., doing great damage.

Onama, Iowa.—The unusual prevalence of easterly winds and almost total absence of rain during the month are worthy of note.

May 22.—Iowa Falls, Iowa.—Saw a small tornado, of a curve shape, passing to the north; the lower end appeared to be about twenty feet from the ground.

May 22.—St. Ingoes, Maryland.—About 4 o'clock p. m. occurred a violent tornado from the west, of greater force than I ever perceived in this locality, which, however, exhausted itself in about fifteen minutes. It was accompanied by a few hail stones. From subsequent inquiries I am led to believe that its path was not rectilinear, but that it inclined towards the southeast as it advanced.

St. John's, New Brunswick.—The mean temperature of May was 1.16° above the average of fourteen years. The amount of rain was an inch and a third below the average for the same period. Although the rain was comparatively light, yet it proved eminently beneficial, as it was well distributed over the month, and fell at brief intervals in refreshing and invigorating showers.

May 28.—Embarrass, Wisconsin.—Hard frost this morning; killed corn to the ground.

May 29.—Lunenburg, Vermont.—Frost in the morning, very light; not sufficient to injure anything.

May 29.—Brandon, Vermont.—Hard frost; water lightly frozen; mercury 36° at sunrise; fruit probably much injured.

- May 29.—Palmyra, New York.—Frost on low land last night.
 May 29.—South Trenton, New York.—White frost this morning.
 May 29.—Fleming, Pennsylvania.—Frost this morning; not much damage done.
 May 29.—Kingston, Ohio.—A light frost this morning.
 May 29.—Welshfield, Ohio.—A very light frost; doing no damage.
 May 29.—New Lisbon, Ohio.—A little frost.

PROGRESS OF THE SEASON.

May 1.—New Bedford, Massachusetts.—Dandelions begin to bloom; 4th, horse chestnut trees begin to expand their leaves; 5th, elms in full bloom and their leaf-buds begin to show the green; 6th, blossoms of the white poplar fuller and leaf-buds bursting; 7th, cherry and peach trees begin to open their blossoms; 9th, Baltimore oriole returned.

May 1.—Skaneateles, New York.—Buds bursting on lilacs, shad-flower, flowering almonds, hawthorn, honeysuckle, and mock-orange; blossom buds on pear trees and cherry trees.

May 1.—Nazareth, Pennsylvania.—General arrival of the swallow, (*Hirundo rustica*;) 5th, general arrival of the cat-bird, (*Nimus carolinensis*.)

May 1.—Burlington, New Jersey.—Peach trees in full bloom.

May 1.—Tioga, Pennsylvania.—Swallows made their appearance to-day.

May 1.—Pontiac, Michigan.—Poplar and elm leafing.

May 1.—Fort Madison, Iowa.—Whip-poor-will heard; 2d, maple leaf expands; 3d, apple leaf expands.

May 2.—South Trenton, New York.—First violet.

May 2.—Haddonfield, New Jersey.—Strawberry apple trees in full bloom, on south side only; Mayduke and early Richmond cherries in bloom; Catawba and Isabella vines leafing; corn planted last week by forward farmers.

May 3.—Sykesville, Maryland.—Cherry trees in bloom; chimney swallows arrived; 6th, apple, pear and plum trees in bloom.

May 3.—Embarrass, Wisconsin.—Wild geese going north; 5th, first blue violet flowered; heard first whip-poor-will and tree-frog.

May 4.—New Lisbon, Ohio.—Plums and cherries in bloom.

May 4.—Canton, Missouri.—Strawberries in bloom; 5th, cherry trees in bloom; 6th, plum trees in bloom.

May 5.—Lunenburg, Vermont.—Martins returned; 7th, bobolinks returned.

May 5.—Haddonfield, New Jersey.—First head of rye seen.

May 5.—Newark, New Jersey.—Pears in full blossom.

May 5.—Hillsborough, Ohio.—Cherry and pear trees in full bloom; 7th, apple trees in full bloom.

May 6.—Spiceland, Indiana.—The woods begin to look green.

May 6.—North Littleton, New Hampshire.—First appearance of barn swallows.

May 6.—Burlington, New Jersey.—Pear and cherry trees in full bloom; 8th, apple trees in full bloom.

May 6.—Green Bay, Wisconsin.—The first whippoorwill heard.

May 6.—Fort Madison, Iowa.—Dwarf apple blossoms; 7th, plum and cherry blossom; hickory leaf expands.

May 7.—Kelley's Island, Ohio.—Strawberries in bloom.

May 7.—Mount Pleasant, Iowa.—Gooseberry bushes and wild plums in blossom; 8th, pears, cherries and a few apples in bloom.

May 8.—Westfield, Massachusetts.—Peaches, pears and cherries in blossom.

May 8.—South Trenton, New York.—Turned cows to pasture for the first time this spring; 9th, grass very forward for the season.

May 8.—Pontiac, Michigan.—Cherry and hickory leafing; 9th, dandelions in bloom; 10th, hard maple and pear leafing; 12th, currant in bloom, willow in leaf.

May 8.—Richland, Nebraska.—Plum blossoms.

May 9.—Canton, Missouri.—Apple trees in blossom; forest trees all leafing out.

May 9.—Embarrass, Wisconsin.—Saw first lizard and toad to-day.

May 9.—Fort Madison, Iowa.—Walnut and black-oak leaves expand; 10th, apple blossoms; white-oak leaf expands; 11th, fire-fly first seen.

May 10.—Connellsville, Pennsylvania.—The apple trees are in full bloom: the peach trees have no bloom.

May 10.—Tioga, Pennsylvania.—Whippoorwills singing to-night.

May 10.—New Lisbon, Ohio.—Woods beginning to look green, though ten days behind ordinary seasons.

May 10.—College Hill, Ohio.—Apple trees just in full blossom. The spring is full three weeks later than usual. No cherries in blossom except the common kind; most of the pear buds killed; no peaches in blossom, and but a few trees alive; gooseberries, currants, strawberries, raspberries and apples uncommonly abundant; grapes very backward, and about one-tenth killed.—(*Professor Wilson.*)

May 11.—Lisbon, Maine.—Bobolinks seen this morning.

May 11.—Wilson, New York.—Baltimore orioles made their first appearance. 12th, wrens first appeared.

May 12.—Kelley's Island, Ohio.—Red currants in bloom; 14th, common red cherries in blossom; all other varieties killed by hard frost in January.

May 12.—Muscatine, Iowa.—Plums, cherries and early apples in full blossom.

May 13.—South Hartford, New York.—Cherry trees beginning to bloom: 14th, apple blossoms first noticed; currant bushes in full bloom.

May 13.—South Trenton, New York.—First plums in bloom.

May 14.—Westfield, Massachusetts.—Apple trees in blossom.

May 14.—Green Bay, Wisconsin.—The first wild plum in blossom.

May 14.—New Ulm, Minnesota.—Plum trees in full blossom.

May 14.—Richland, Nebraska.—Cherry blossoms.

May 15.—Tioga, Pennsylvania.—Plums, cherries, pears and peaches in bloom: 20th, apple trees in bloom.

May 15.—Pontiac, Michigan.—Butternut leafing; 16th, black oak leafing; 17th, locust and peach leafing; lilac in flower; 19th, white oak leafing; musquitoes; 21st, crab tree in bloom.

May 15.—Embarrass, Wisconsin.—Anemone, dandelion, plum and wild cherry in flower; musquitoes appearing.

May 15 to 20.—Onawa, Iowa.—Apple trees in bloom.

May 16.—Newark, New Jersey.—Horse-chestnuts in full bloom.

May 16.—Nazareth, Pennsylvania.—Found a nest of young robins, just hatched. This was, probably, one of the earliest, if not the first brood of robins hatched here this season; 17th, general arrival of the bobolink.

May 17.—Haddonfield, New Jersey.—Early sown wheat in head; 20th, rye first seen in blossom; early sown wheat in bloom.

May 18.—South Trenton, New York.—Whippoorwill first seen.

May 18.—Dubuque, Iowa.—Apple trees in blossom.

May 18.—Kelley's Island, Ohio.—Dwarf peas in blossom; 20th, apples in blossom.

May 19.—Skaneateles, New York.—Grapes sprouting—Isabella, northern Muscadine, Clinton and Catawba; 21st, Osage orange breaking leaf buds, lilacs in blossom.

May 19.—Iowa Falls, Iowa.—Apple, cherry and plum trees are in full bloom, and extra full.

May 23.—Williamsburg, Maine.—Wild cherries blossoming; white-ash leaves partly out; birch, maple, beach, &c., in leaf; 30th, apple and pear trees in blossom in favorable situations.

May 23.—Strafford, New Hampshire.—Apple trees beginning to bloom; 29th, apple trees in full bloom; 31, lilacs in bloom.

May 23.—Brandon, Vermont.—Apple trees in blossom.

May 24.—Cornishville, Maine.—Cuckoo first appeared; 31st, grass very forward and promising.

May 24.—New Bedford, Massachusetts.—The calix of the *cornus florida* assumes its snowy whiteness; 26th, lilacs, horse-chestnuts, and apple orchard in full bloom; 29th, altheas burst the bud; 30th, leaves of forest trees generally developed.

May 25.—Nazareth, Pennsylvania.—A number of night herons (*Nyctiarde gardeni*) were seen several miles south of this station.

May 29.—Canton, Missouri.—Strawberries begin to get ripe.

May 29.—Mount Pleasant, Iowa.—Black locust in full bloom; 31st, white clover beginning to blossom; have had no rain till to-day, since the ninth of the month.

May 30.—South Hartford, New York.—Mountain ash in bloom.

May 31.—Lisbon, Maine.—Grass is looking finely in this section; was not winter-killed, and promises a large crop. Black flies and mosquitoes are very plentiful, (unusual at this period of the season.)

May 31.—Newbury, Massachusetts.—Apple trees in full blossom.

NOTE.—Mr. Abell, of Welshfield, Ohio, has furnished very full lists of the dates of arrival, departure and nesting, of birds in March, April and May, which we have combined in one table, and reserve for subsequent additions and insertion in a future number. A list of all the known species of birds of North America, giving both the English and scientific name, has been published by the Smithsonian Institution, and may be obtained on application to the Secretary.

BI-MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

JUNE AND JULY,

1864.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1864.



BI-MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,

Washington, August. 1864,

The recent widely extended and severe drought has given rise to serious apprehensions of a failure in the fall crops. The great loss sustained by the corn crop last year from destructive frosts, and the injury to the wheat crop by freezing out during last winter, estimated at 30 per cent., presented just grounds for alarm, should the fall crops of corn and potatoes be cut short by the prevailing drought.

The want of old corn will render the farmers entirely dependent on the new crop for fattening purposes, and the want of fruit in the western States would have obliged that section of the country to rely still more on their wheat for food, in the event of a short crop of corn and potatoes. Hence the anxiety in regard to the drought.

The tables found in this bi-monthly report show that of the entire number of weeks in all the States reported, there were 441 weeks of favorable weather and 1,138 of dry in the month of June, and a still greater disproportion in the month of July. But these tables were made from the returns of the correspondents on the 1st day of August. The rains which have so generally fallen during this month have dissipated the fears previously existing, although their effect and extent cannot yet be determined with certainty.

The tables, therefore, do not represent any portion of the benefit of these rains, but embrace only the dry months of June and July. As the *wheat* crop has been harvested, the returns for it will not be materially changed, although it is believed that the threshing will be more favorable than usual to the number of sheaves. The grain is reported as very large, and the heads very full. No rust shrivelled any portion of the crop, and it was unaffected by any other disease, except by smut in some localities. The chinch-bug injured many fields in Iowa and Wisconsin of the spring wheat. But whilst the injury to the winter wheat from freezing out was reported to the department at about 30 per cent., the subsequent favorable weather, as will be seen from the table in this report, reduced the total loss to about $1\frac{1}{3}$ tenth, or between thirteen and fourteen per cent. below the crop of 1863, one of the largest crops ever grown in the country. The crop of spring wheat will be less than an ordinary crop by about $\frac{3}{4}$ of a tenth, or seven and a half per cent. It is believed that the amount of old wheat on hand may make up these deficits, but what this amount is will appear from the returns to circulars just issued.

In regard to the *corn* crop, the tables show that on the first day of August, in Illinois, the great corn-producing State of the country, its *condition* was an average one; in Iowa, two tenths *above* such average; in Indiana $3\frac{1}{2}$ tenths *below*; in Ohio, $1\frac{1}{2}$ tenth *below*; in Wisconsin, a $\frac{1}{2}$ tenth *below*. But taking into consideration the effect of the rains which have recently fallen, there is nothing to justify apprehensions of scarcity in any of the great cereal products. It is believed that the loyal States will have produced enough for abundant home consumption, and to supply the usual foreign demand for our cereals.

The tables show that an increased amount of *sorghum* has been planted over the crop planted in 1863, and its condition is represented as favorable.

A considerable decrease in the amount planted of *tobacco* is reported, nor is its condition very favorable. How far it will be benefited by the rains of August cannot be determined now. But the decreased amount planted indicates the scarcity of labor, and the unfavorable character of the summer for setting out the plants.

Flax and *beans* have largely been increased, and their condition was favorable in July.

No complaints have been made to the department of any loss arising from want of harvest labor. The extensive use of labor-saving implements and machines, and the dry weather, have enabled the farmer to secure his summer crops in excellent condition.

The *hay* crop is unusually well secured. The grass grown in a dry season always contains a much greater amount of nutrition in proportion to its bulk, than when grown in a wet one, and it may be regarded as true that one ton of the hay of this year will be equal to a ton and a half of such as last year.

For the prompt and excellent returns to the circulars by his correspondents, the Commissioner tenders his sincerest thanks, and hopes, that as the utility of their labor will be, from month to month, more and more seen, other recognition of the value of their services will be made, and that the gratitude of all will be accorded to them.

ISAAC NEWTON, *Commissioner*.

Table showing the condition of the crops in the months of June and July, 1864.

STATES.	WHEAT, (winter.)		WHEAT, (spring.)		BARLEY.		OATS.		CORN.		SORGHUM.		COTTON.		TOBACCO.		FLAX.		BEANS.	
	Average of winter wheat harvested, compared with 1863.	Injury from freezing out and all other causes.	Average of spring wheat harvested, compared with 1863.	Injury from freezing out and all other causes.	Average amount of barley harvested, compared with 1863.	Injury from freezing out and all other causes.	Average condition of the oat crop during July.	Injury from all causes.	Average condition of the corn crop during July.	Injury from all causes.	Average amount planted, compared with 1863.	Appearance of crop in July.	Average amount planted, compared with 1863.	Appearance of crop in July.	Average amount planted, compared with 1863.	Appearance of crop in July.	Average amount sown, compared with 1863.	Appearance of crop in July.	Average amount planted, compared with 1863.	Appearance of crop in July.
Maine.....	9	8	9½	7	7	5½	8	7	7	7	8	8	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	11	8	9	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Vermont.....	11	8	9	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Massachusetts.....	11	8	9	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island.....	12	8	11	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut.....	12	8	11	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
New York.....	9	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	7	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania.....	8	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	8	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Delaware.....	7	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Kentucky.....	7	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Ohio.....	11	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Michigan.....	11	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Indiana.....	10	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Illinois.....	9	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Missouri.....	8	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Wisconsin.....	9	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	9	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Minnesota.....	9	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Kansas.....	9	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	5	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	8	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska Territory.....	5	7	7	7	7	7	11	7	7	7	9	8	.....	.....	.....	.....	.....	.....	.....	.....

Table showing the condition of the crops in the months of June and July 1864.

STATES.	POTATOES.	MEADOW AND CLOVER HAY.	PASTURES.	BUTTER AND CHEESE.		WEATHER.													
	Average amount planted, compared with 1863.	Appearance of crop in July.	Average amt of timothy hay made this season, compared with 1863.	Average amount of clover hay made this summer, compared with 1863.	Appearance of pastures in July.	Injury from any cause this summer.	Average amount made this season, compared with 1863.	Average amount made this season, compared with 1863.	No. of weeks.										
									June.					July.					
									Favorable.	Dry.	Very dry.	Wet.	Very wet.	Favorable.	Dry.	Very dry.	Wet.	Very wet.	
Maine.....	10			6	8 $\frac{1}{2}$	6	8 $\frac{1}{2}$	10	22										
New Hampshire.....	11			6 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	12	18										
Vermont.....	9			6 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	15	24										
Massachusetts.....	10			6 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	17	26										
Rhode Island.....				7 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	8	4										
Connecticut.....	13			7 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	8	4										
New York.....	11			8	6 $\frac{1}{2}$	9	8	34	117										
New Jersey.....	9			8	7 $\frac{1}{2}$	6	9	22	17										
Pennsylvania.....	11 $\frac{1}{2}$			10	7	6 $\frac{1}{2}$	9	39	88										
Maryland.....	12			13	6	6 $\frac{1}{2}$	6	7	17										
Delaware.....								17											
Kentucky.....	11			13	6	6	10	18	13										
Ohio.....	12 $\frac{1}{2}$			10 $\frac{1}{2}$	7 $\frac{1}{2}$	7	8	54	119										
Michigan.....	12			9	7 $\frac{1}{2}$	7 $\frac{1}{2}$	13	9 $\frac{1}{2}$	61										
Indiana.....	12			11	6	6	7 $\frac{1}{2}$	7 $\frac{1}{2}$	39										
Illinois.....	11 $\frac{1}{2}$			10	6 $\frac{1}{2}$	7	7 $\frac{1}{2}$	47	156										
Missouri.....	11			11	7	7	7	15	52										
Wisconsin.....	12			9	5 $\frac{1}{2}$	7	9	9	4										
Iowa.....	11			8	6	8	10	9	76										
Minnesota.....	12			10 $\frac{1}{2}$	9	8	10	9	45										
Kansas.....	12			7	10	8	10	10	46										
West Virginia.....	12 $\frac{1}{2}$			9	7	6 $\frac{1}{2}$	11	11	17										
Nebraska Territory.....	11			10	8	8 $\frac{1}{2}$	7	10	13										

EXPLANATION OF THE FOREGOING TABLES.

The foregoing tables are expressed in *tenths*. The number ten (10) represents the standard of an ordinary fair crop, or the amount or condition of a crop of a certain year stated in the question. It represents also the injury which the crop may have received. One-tenth of an increase in amount, or condition is expressed by 11; two-tenths of such an increase by 12; and so like decreases are shown by the figures 9 and 8. A brief reference to the first line of figures in the first table will enable the reader more clearly to read the table.

Maine. The average amount of winter wheat harvested, compared with the crop of 1863, is 9, that is, one-tenth less. The injury to the crop is 8, or two-tenths. The oat crop of the same State in condition is stated to be $6\frac{1}{2}$, or $3\frac{3}{4}$ tenths below an average crop in appearance in July. The injury is the same.

A general idea in this way is shown of the state of the crops, but to form one that closer approximates to its true condition, a knowledge of the amount of each crop usually grown by a State, is necessary, so far as to be able to classify the States into large, moderate, or small producing States of any particular crop. Thus, Indiana, Michigan, Pennsylvania, New York, and Wisconsin, are large wheat-growing States, producing from fourteen to twenty millions of bushels of wheat annually. Ohio and Illinois are very large growers, yielding over thirty millions of bushels. The other States range from ten millions down to about three hundred thousand. Hence, to estimate the gain or loss of any crop, a table of comparison must be made, and this the department does in October, for at that time the final returns of the summer crops are obtained. In every stage of the crop, it is reported. The amount of winter wheat sown is first inquired after; then its appearance in the fall; then its condition in the winter; then the amount destroyed by freezing out during the winter, and its growing condition in March and May; then its condition and amount when harvested; and lastly its yield when threshed out. For often wheat threshes out much better or much worse than anticipated. When all these returns are received, they are carefully compared, and the tables based on this examination and comparison. The next bi-monthly report will contain full and comparative tables of the yield of the crops for the years 1862, 1863, and 1864. The extent of the August rains will then be fully known, and their effect on the fall crops.

A general examination of these tables will show that the crops have been seriously damaged by drought, especially the fall crops; but these will be much improved by the rains of this month. The injury to spring wheat in Wisconsin and Iowa, where it is largely grown, is considerable, on account of the destruction by the chinch-bug. But in Illinois it is an unusually good crop.

Whilst the table should admonish us to exercise economy, there is no occasion for alarm. The next bi-monthly report will be prepared with such care as will make its estimates worthy of general reliance.

The *weeks* of weather, as reported above, foot up as follows:

June. Favorable, 441; dry, 1,138; very dry, 0; wet, 72; very wet, 0.

July. Favorable, 415; dry, 1,236; very dry, 0; wet, 68; very wet, 0.

EXPORTS OF PRODUCE.

[From the Journal of Commerce.]

Amount of exports from New York of the leading agricultural products from January 1, 1864, to August 16, and their prices on the last-named day.

	1864.	1863.	1864.
	From January 1 to August 16.	Same time.	Prices August 16.
Wheat flour.....barrels..	1,382,530	1,597,421	\$9 to \$12
Rye flour.....do.....	2,253	4,360	\$8 25 to \$10 75
Corn-meal.....do.....	76,883	91,201	\$3 to \$8 50
Wheat.....bushels..	9,825,517	10,123,398	\$2 12 to \$2 47
Corn.....do.....	533,091	6,901,661	\$1 51½ to \$1 55
Rye.....do.....	405	377,801	\$1 85 to \$1 90
Barley.....do.....	150	52,439	
Oats.....do.....	26,081	112,375	96c. to 99c.
Peas.....do.....	157,154	71,454	\$1 90 to \$2
Cotton.....bales..	25,007	10,185	\$1 75 per pound.
Hay.....do.....	22,637	15,535	\$25 to \$34 per ton.
Hops.....do.....	17,239	19,568	20c. to 33c. per pound.
Leaf tobacco.....hhds..	40,166	25,621	15c. to 50c. per pound.
Leaf tobacco.....packages..	45,554	32,239	
Manufactured.....pounds..	2,832,295	1,797,955	
Petroleum.....gallons..	11,710,114	-----	85c. to 87½c.
Pork.....barrels..	100,703	125,025	\$36 to \$41 25
Beef.....do.....	26,449	27,702	\$6 to \$15
Beef.....tierces..	41,395	34,106	
Cut meats.....pounds..	83,866,589	162,289,960	14½c. to 18c.
Butter.....do.....	7,229,091	8,105,425	40c. to 55c.
Cheese.....do.....	26,087,340	19,461,700	18c. to 26c.
Lard.....do.....	43,212,009	90,320,534	21½c. to 22½c.
Tallow.....do.....	24,008,624	27,030,419	19c. to 19½c.

TABLE OF IMMIGRATION.

Through the courtesy of the collector of customs at New York the department has received the following statement of the number of immigrants at that port from January to July, 1864 :

Statement showing the number of arrivals of foreign emigrants in the district and port of New York during the first six months of the year 1864.

	Over 21 years old.		Under 21 years old.		Total.
	Male.	Female.	Male.	Female.	
January.....	1,476	611	494	430	3,011
February.....	1,119	402	271	257	2,049
March.....	2,240	826	598	523	4,187
April.....	6,519	3,120	3,668	2,677	15,984
May.....	8,127	6,244	4,636	3,743	22,750
June.....	8,632	6,123	3,812	2,839	21,406
	28,113	17,326	13,479	10,469	69,387

JUNE.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for June, 1864, at the following places, as given by the observers named. The daily observations were made at 7 o'clock a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Perry	Washington	Wm. D. Dana	25	91	10	43	59.8	0.92
Steuben	do	J. D. Parker	15	92	10, 11	45	60.6	1.40
Lee	Penobscot	Edwin Pitman	15, 25	92	11	42	65.1	1.64
Belfast	Waldo	Geo. E. Brackett	26	88	10	50	64.4	0.30
West Waterville	Kennebec	B. F. Wilbur	25	90	4, 8	45	65.7	0.55
Gardiner	do	Rev. F. Gardiner	25, 26	88	10	47	63.7	0.90
Lisbon	Androscoggin	Asa P. Moore	26	91	10	46	64.5	2.15
Cornish	York	Silas West	19	89	10	39	60.3	0.80
Cornishville	do	G. W. Guptill	26	92	10	45	66.7	1.18
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	19	89	10	36	61.0	1.29
North Littleton	Grafton	Rufus Smith	18, 19, 20, 25	82	11	35	58.5	0.50
Barnstead	Belknap	Charles H. Pitman	25	94	10	43	66.8	0.95
Claremont	Sullivan	Arthur Chase	25	94	10	45	67.0	0.90
Do	do	Stephen O. Mead	25	92	11	44	65.2	.....
VERMONT.								
Lunenburg	Essex	Hiram A. Cutting	26	98	12	34	67.9	1.25
Craftsbury	Orleans	James A. Paddock	19	85	10	36	60.8	1.00
Burlington	Chittenden	Rev. McK. Petty	25, 26	85	10	41	63.2	1.51
Middlebury	Addison	H. A. Sheldon	25	95	11	39	65.8	1.39
MASSACHUSETTS.								
Sandwich	Barnstable	N. Barrows, M. D.	25	92	10	44	64.6	1.01
Newbury	Essex	John H. Caldwell	26	96	11, 12	48	67.9	.....
Topfield	do	A. M. Merriam	26	93	10	42	66.1	1.29
New Bedford	Bristol	Samuel Rodman	26	90	12	51	65.2	1.03
Mendon	Worcester	J. G. Metcalf	25	94	10	47	67.0	.....
Baldwinsville	do	Rev. E. Dewhurst	25	90	10	41	58.4	1.00
Amherst	Hampshire	Prof. E. S. Snell	25	94	10	47	65.7	1.38
Springfield	Hampden	J. Weatherhead	25, 26	100	11	38	65.4	0.56
Westfield	do	Rev. E. Davis	25, 26	91	10	46	65.3	0.53
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell	25	95	10	47	65.6	1.22
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	25	89	10	47	64.6	1.12
Columbia	Tolland	Wm. H. Yeomans	25	96	12	50	69.1	.....
Middletown	Middlesex	Prof. Jno. Johnston	25, 26	96	10	48	67.7	3.00
NEW YORK.								
Moriches	Suffolk	Miss N. Smith	25, 26	98	10	49	68.1	2.30
South Hartford	Washington	G. M. Ingalsbe	25	96	11	46	70.2	0.82
North Argyle	do	George M. Hunt	25	94	11	46	66.3	1.04
Fishkill Landing	Dutchess	Wm. H. Denning	26	95	10	50	68.5	1.24
Garrisons	Putnam	Thomas B. Arden	26	90	11	48	66.0	1.84
White Plains	Westchester	Oliver R. Willis	26	93	11	54	70.5	.....
Throg's Neck	do	F. M. Rogers	26	96	11	51	68.5	2.66
St. F. Xavier's Coll.	New York city	Rev. John Aubier	26	97	10	54	70.5	3.59
Flatbush	Kings	Eli T. Mack	25	96	12	48	66.8	2.75
Schenectady	Schenectady	Robert M. Fuller	25	92	10	46	68.1	0.75
Gouverneur	St. Lawrence	C. H. Russell	25	89	10	39	65.4	0.50
Clinton	Oneida	H. M. Paine, M. D.	20	96	10	46	69.5	1.15
South Trenton	do	Storrs Barrows	.....	.....	.....	.....	.....	1.71
Oneida	Madison	S. Spooner, M. D.	25	92	10	44	62.0	2.08
Theresa	Jefferson	S. O. Gregory	19	88	10	42	63.8	0.77
Oswego	Oswego	Wm. S. Malcolm	21	84	10	45	62.7	0.58
Palermo	do	E. B. Bartlett	26	95	10	43	65.0	.....

Temperature and rain of June, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK—Cont'd.								
Skaneateles	Onondaga	W. M. Beauchamp	25	90	7, 10, 11	42	66.8	<i>Ir.</i>
Auburn	Cayuga	John B. Dill	25	96	10	44	70.7	.....
Nichols	Tioga	Robert Howell	25	97	10	43	66.6	.....
Palmira	Wayne	Stephen Hyde	25, 26	92	10	47	68.0	.....
Seneca Falls	Seneca	Philo Cowing	25	100	10	45	64.3	.....
Rochester	Monroe	Dr. M. M. Mathews	24, 25	93	10	46	67.3	1.57
Wilson	Niagara	E. S. Holmes, D.D.S.	25	95	10	47	67.6	.....
Buffalo	Eric	Wm. Ives	21	96	10	46	66.0	0.91
Janestown	Chautauque	Rev. S. W. Roe, M.D.	21	96	12	44	66.8	0.50
NEW JERSEY.								
Passaic Valley	Passaic	William Brooks	26	98	10	48	68.0	2.71
Newark	Essex	W. A. Whitehead	26	95	11	45	67.3	1.90
New Brunswick	Middlesex	Geo. W. Thompson	26	98	11	51	68.5	.....
Mount Holly	Burlington	M. J. Rhees, M. D.	26	95	11	51	68.9	.....
Progress	do	Thos. J. Beans	26	96	11	53	69.4	1.61
Burlington	do	John C. Deacon	26	95	11	50	67.3	1.40
Haddonfield	Camden	J. S. Lippencott	26	96	11	53	69.2	2.39
Greenwich	Cumberland	Clarkson Sheppard	26	94	10	50	65.8	0.50
PENNSYLVANIA.								
Nazareth	Northampton	L. E. Ricksecker	26	98	10	48	70.1	.....
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	26	96	12	51	71.9	2.25
Germantown	do	Thomas Meehan	25	99	11	58	74.8	.....
Fallington	Bucks	Eben'r Hance	26	95	10, 11	53	68.7	2.39
Moorland	Montgomery	A. Spencer	26	93	11	51	67.6	2.40
Mount Joy	Lancaster	J. R. Hofer	25	100	13	55	74.1	2.10
Berwick	Columbia	John Eggert	25	96	11	50	68.9	1.88
Harrisburg	Dauphin	John Heisely, M. D.	25, 26	95	13	56	72.6	2.68
Tioga	Tioga	E. T. Bentley	22	98	10	41	68.3	1.85
Williamsport	Lycoming	H. C. Moyer	25	91	10	47	67.3	.....
Fleming	Center	Samuel Brugger	24, 25	95	12, 13	46	68.1	1.65
Canonsburg	Washington	Rev. W. Smith, D.D.	25	90	12	41	66.2	4.32
DELAWARE.								
Wilmington	Newcastle	U. D. Hedges, M. D.	25	96	10, 12	55	70.5	1.80
MARYLAND.								
Chestertown	Kent	Prof. J. R. Dutton	26	97	11	55	71.8	1.37
Annapolis	Anne Arundel	Wm. R. Goodman	26	100	11	57	72.7	1.74
St. Mary's	St. Mary's	Rev. J. Stephenson	26	96	12	56	72.7	1.19
Sykesville	Carroll	Miss H. M. Baer	25	92	14	53	64.3	1.50
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Inst'n	25	94	14	56	72.1	0.81
SOUTH CAROLINA.								
Hilton Head	Beaufort	Lieut. C. R. Suter	27	92	13, 14	63	71.9	6.01
Beaufort	do	M. M. Marsh, M. D.	27	100	13, 14	58	77.0	5.90
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	25, 26	94	12	48	72.6	3.00
OHIO.								
Saybrook	Ashtabula	James B. Frazer	25, 26	93	10, 11	38	64.6	0.18
East Fairfield	Columbiana	S. B. McMillan	26	91	11	48	66.8	0.89
New Lisbon	do	J. F. Beumers	24, 25	97	11	45	69.1	0.93
Steubenville	Jefferson	Roswell Marsh	25	92	.....	40	.....	4.95
Welshfield	Geauga	B. F. Abell, A. M.	26	95	10	43	68.1	1.17
Milnersville	Guernsey	Rev. D. Thompson	24, 25	95	12	45	.....	2.81
Wooster	Wayne	Martin Winger	26	96	10	47	70.0	.....
Norwalk	Huron	Rev. A. Newton	25, 26	94	11, 12	48	66.9	3.04
Westerville	Franklin	Pf. H. A. Thompson	9, 17	88	12	50	68.0	.....
Kingston	Ross	Prof. Jno. Haywood	24	95	12	52	72.1	2.04
Portsmouth	Scioto	L. Engelbrecht	26	91	3	53	72.1	2.40
Urbana	Champaign	Pf. M. G. Williams	26	95	2, 11	48	70.3	3.82
Hillsborough	Highland	J. McD. Mathews	25	91	12	49	69.8	3.37
Bethel	Clermont	George W. Crane	26	95	12, 13, 14	50	71.5	6.88
College Hill	Hamilton	I. H. Wilson	24, 25	92	13	51	74.3	4.38
Do	do	John W. Hammitt	26	94	13	54	74.8	3.13
Cincinnati	do	G. W. Harper	25	98	13	53	75.0	3.43

Temperature and rain of June, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MICHIGAN.								
Pontiac	Oakland	James A. Weeks	21, 24, 25, 26	90	10	46	67.0	In.
Monroe City	Monroe	Miss F. E. Whelpley	18	93	10, 11	50	68.1	5.05
Ypsilanti	Washtenaw	C. S. Woodard	25	93	12	46	68.3	3.82
Agricultural College	Ingham	Prof. R. C. Kedzie	24	95	1, 6, 13	48	67.7	3.88
INDIANA.								
Pennville	Jay	Miriam Griest	17, 18, 24, 30	96	12, 13	46	72.0	-----
Muncie	Delaware	E. J. Rice	26	97	11	54	74.3	0.25
Spiceland	Henry	William Dawson	25, 26	97	1, 13	53	74.0	1.40
New Castle	do	T. B. Redding, A. M.	26, 30	93	13	51	71.5	1.24
New Albany	Floyd	E. S. Crozier, M. D.	26	95	12	54	72.0	3.03
South Bend	St. Joseph	Reuben Burroughs	18, 25, 26	95	10	45	71.1	1.27
Indianapolis	Marion	Royal Mayhew	25, 26	95	11, 13	54	72.5	1.78
Bloomingsdale	Parke	W. H. Hobbs	29	92	13	54	75.2	-----
New Harmony	Posey	John Chappellsmith	29	96	11	56	76.5	0.93
ILLINOIS.								
Riley	McHenry	E. Babcock	25	93	10, 11	44	67.1	2.81
Sandwich	De Kalb	N. E. Ballou	29	96	10	43	69.4	2.37
Ottawa	La Salle	Mrs. E. H. Merwin	29	101	11	42	69.9	1.53
Tiskilwa	Bureau	Verry Aldrich	30	96	10	42	70.0	-----
Wyandot	do	E. S. Phelps, jr.	29	93	7	38	78.2	-----
Heunepin	Putnam	Smiley Shepherd	29, 30	94	7	36	69.0	-----
Peoria	Peoria	Frederick Brendel	26	95	12	52	74.9	2.55
Pekin City	Tazewell	J. H. Riblett	26, 29, 30	94	11, 12	50	73.8	2.80
Hoylton	Washington	J. Ellsworth	30	103	11	49	78.8	3.00
Waverly	Morgan	Timothy Dudley	26, 30	96	11	48	73.2	0.60
Galesburg	Knox	Prof. W. Livingston	26, 30	89	11	50	68.4	4.80
Manchester	Scott	Dr. J. & Miss Grant	29	96	11	49	73.5	1.12
Augusta	Hancock	S. B. Mead, M. D.	30	94	7	49	72.3	1.37
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lups	25, 26	92	11	42	61.2	1.44
Milwaukee	Milwaukee	I. A. Lapham, LL. D.	24	97	7	39	65.2	0.15
do	do	Carl Winkler	25	97	6, 10	45	70.0	0.01
Green Bay	Brown	Frederick Deckner	23	95	10	43	67.5	0.94
Geneva	Walworth	Wm. H. Whiting	23, 24	90	10	42	63.2	-----
Embarrass	Waupaca	J. Everett Breed	19, 22, 23, 24	98	11, 13	32	68.5	1.82
Waupacea	do	H. C. Mead	23	98	6, 10, 11	50	73.8	-----
Lebanon	do	J. C. Hicks	18	98	6	44	69.7	-----
Superior	Douglas	Thomas Clark	24	94	1, 3, 12	45	64.0	3.62
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	25	96	6	42	57.4	1.29
St. Paul	Ramsey	Rev. A. B. Paterson	22, 25	91	6	46	69.7	1.62
Tamarack	Heunepin	Mary A. Grave	22	95	6	54	-----	-----
New Uhn	Brown	Charles Roos	25	97	5	49	73.7	2.38
IOWA.								
Lyons	Clinton	Dr. P. J. Farnsworth	21, 29	92	7, 10, 11	48	70.6	3.45
Dubuque	Dubuque	Asa Horr, M. D.	21	93	11	52	72.3	3.69
Independence	Buchanan	A. C. Wheaton	23, 24	94	10, 13	50	71.8	7.80
Iowa City	Johnson	Theo. Parvin, A. M.	29	93	7	46	70.6	5.70
Mount Pleasant	Henry	Rev. E. L. Briggs	26, 29	94	1, 6, 11, 12	52	73.1	0.77
Fort Madison	Lee	Daniel McCready	25	95	7	47	71.2	2.01
Waterloo	Blackhawk	T. Steed	21, 23, 24, 26	90	2	50	63.3	4.56
Pleasant Plain	Jefferson	T. McConnell	21, 22	100	2	41	71.5	3.05
Iowa Falls	Hardin	N. Townsend	21, 22	90	6, 12	44	69.8	8.25
Algona	Kossuth	Dr. & Miss L. McCoy	21	98	1, 3, 4	52	71.2	3.62
Onawa	Monona	Rich. Stebbins	20, 21, 26	97	6	50	74.1	-----
MISSOURI.								
Allenton	St. Louis	Augs. Fendler	30	103	13	52	75.2	-----
Fox Creek	do	William Muir	28, 30	96	12	55	76.2	2.10
Athens	Clark	J. T. Caldwell	29	99	2	22	74.5	1.25
Canton	Lewis	George P. Ray	30	104	1	51	74.6	1.12
Harrisonville	Cass	John Christian	20, 21	98	12	57	77.2	2.38

Temperature and rain of June, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEBRASKA TER.								
Elkborn City	Washington	Miss A. M. J. Bowen.	21	101	6	50	74.9	<i>In.</i>
Bellevue	Sarpy	Rev. Wm. Hamilton.	20	95	1, 6	53	73.7	2.86
KANSAS.								
Olatha	Johnson	W. Beckwith	21	104	2	49	-----	2.63
Manhattan	Riley	H. L. Denison	21	100	6	50	75.8	2.06
Fort Riley	Davis	Elford E. Lee	21, 29, 30	99	6	54	78.1	1.88
UTAH TERRITORY.								
St. George	Washington	H. Pearce	9, 30	98	22	58	78.0	-----
Great Salt Lake City.	Great Salt Lake.	W. W. Phelps	25, 26	87	13, 14	53	68.6	1.50
OREGON.								
Auburn	Baker	S. M. W. Hindman ..	29	76	18	44	-----	2.50
CALIFORNIA.								
Sacramento	Sacramento	T. W. Logan, M. D.	30	96	17, 18	58	71.5	0.09

ADDENDA FOR MAY,

Received since our issue for April and May.

UTAH TERRITORY.								
St. George	Washington	H. Pearce	27, 30	90	8	50	68.5	1.11
Great Salt Lake City.	Great Salt Lake.	W. W. Phelps	30	82	7, 8	46	63.5	1.96
COLORADO TER.								
Montgomery	Parke	James Luttrell	29	65	1, 3, 9	29	42.5	11.73

Table showing the average temperature and fall of rain (in inches and tenths) for the month of June, in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	6	61.7	6.1	63.8	6.9	53.3	3.7	63.3	2.1	60.3	7.2	61.7	4.4	60.6	2.3	64.4	1.09
New Hampshire.....	3	63.9	3.8	67.2	2.9	61.8	3.3	67.4	2.3	53.7	5.1	62.8	3.3	60.9	2.3	63.7	0.91
Vermont.....	3	60.7	8.4	66.3	2.0	61.2	4.9	67.6	2.3	62.0	4.0	63.6	4.7	61.3	2.7	64.4	1.29
Massachusetts.....	4	54.3	4.0	66.6	3.0	62.5	2.5	66.9	4.7	63.6	6.5	62.8	4.1	61.7	1.8	65.1	0.97
Rhode Island.....	2	65.3	2.0	67.8	2.5	62.0	1.9	67.7	5.6	63.7	7.7	65.3	3.9	63.9	1.22	65.6	1.22
Connecticut.....	4	64.8	4.1	67.4	2.7	62.1	3.1	62.1	3.9	62.9	7.3	63.9	4.3	57.6	67.1	67.1	2.06
New York.....	17	63.2	5.5	68.3	3.1	63.4	6.8	69.7	4.1	62.9	4.0	65.5	4.7	62.5	1.9	66.1	1.53
New Jersey.....	4	68.8	5.5	72.2	2.8	67.0	6.6	72.8	4.2	67.3	3.5	68.6	4.5	66.2	10.5	68.1	1.75
Pennsylvania.....	14	67.3	8.2	72.5	2.9	67.4	7.4	73.6	4.4	67.7	3.7	68.7	5.3	63.5	3.6	69.1	2.38
Delaware.....	1	68.9				69.9		70.4	2.3			71.7	4.8				1.80
Maryland.....	4	70.8	5.7	75.0	3.0	72.4	8.3	73.8	3.8	68.7	3.6	72.3	4.9	67.6	2.7	70.4	1.45
District of Columbia.....	1	71.2	5.6	74.7	3.9	71.6	6.5	76.4	1.4	71.4	5.0	73.0	4.9	70.2	2.6	72.1	0.81
South Carolina.....	5	73.5	5.8	78.9	3.8	78.1	2.6	81.8	2.2	76.6	4.6	78.2	3.8				5.95
Tennessee.....	2	70.9	5.1	77.6	1.2	73.9	3.6	75.1	5.8	75.2	4.4	74.6	4.0				
Kentucky.....	4	70.8	6.1	76.7	2.8	69.7	4.9	74.8	4.1	72.0	3.3	72.8	4.2				
Ohio.....	26	68.5	8.5	73.0	3.4	67.5	5.2	72.9	5.2	66.8	4.4	69.7	5.4	61.5	1.9	72.6	3.09
Michigan.....	7	63.5	8.4	68.8	4.6	63.4	3.7	70.1	3.9	61.3	3.3	65.7	4.9	62.7	10.8	67.8	4.25
Indiana.....	5	68.6	5.2	76.5	2.1	68.0	4.7	73.5	5.6	69.9	4.7	71.3	4.5	66.6	2.6	73.1	4.29
Illinois.....	14	67.8	2.8	75.1	2.6	62.6	3.9	72.8	5.8	66.6	2.9	69.0	3.6	67.3	1.5	72.1	2.29
Wisconsin.....	6	63.7	3.9	64.5	4.1	62.1	4.5	69.0	5.3	62.3	5.1	64.3	4.6	61.4	1.9	66.9	1.33
Minnesota.....	3	66.7	5.0	67.4	2.8	64.5	4.1	67.7	2.8	65.8	6.5	65.2	4.2	61.9	0.2	66.9	1.43
Iowa.....	9	68.4	5.0	73.5	1.9	68.3	1.8	72.2	6.4	66.2	5.6	68.7	4.1	68.6	1.3	72.0	4.29
Missouri.....	6	71.6	4.3	73.5	1.1	70.6	2.6	70.5	6.7	72.3	11.0	68.7	5.2	72.7	0.7	73.5	1.71
Nebraska Territory.....	3					71.6	3.3	74.5	7.1	71.0	2.8	70.9	4.3	67.7	2.8	74.3	2.86
Kansas.....	3					72.1	1.1	74.9	8.3	73.2	5.8	73.4	5.1	71.5	5.9	76.9	2.19
California.....	1			63.3	0.0	66.5	0.2	68.1	0.1	72.4	1.3	69.1	0.4			71.5	0.09

FROST, JUNE, 1864.

The lowest temperature in June, 1864, as shown by the tables, was generally from the 10th to the 12th. In some localities, especially west of the Mississippi, a lower degree occurred earlier in the month. The hour of morning observation being seven o'clock, the tables do not give the actual minimum; but on the days mentioned the temperature was so low as to produce frost over a wide extent of country. The following extracts from the registers furnish notices of the frost from Maine to Minnesota:

Lisbon, Maine.—Quite severe frost on the night of the 10th and 11th, killing beans, vines, and in some places corn.

Cornishville, Maine.—June 11.—Frost at night; 12th, frost at night that killed corn and beans on low and flat land.

Lee, Maine.—June 28, 29.—Frost seen early in the morning.

Steuben, Maine.—June 4.—Frost this morning; 12th, frost on the high lands, and on the intervals by the river; it looked like winter till considerably after sunrise.

Gardiner, Maine.—June 11, 12.—Frost in neighboring low places.

North Littleton, New Hampshire.—June 12.—Severe frost this morning, cutting down, in many localities, all tender vegetation.

Claremont, New Hampshire.—June 11, 12, 13.—Frost in some places.

Barnstead, New Hampshire.—June 11.—Heavy frost, doing much damage to corn and beans.

Stratford, New Hampshire.—June 10.—Light snow from 6 to 8 a. m.; 12th, hard frost this morning, ice quarter of an inch thick; corn, potatoes, beans, and all tender plants killed to the ground.

Brandon, Vermont.—June 11, 12.—Light frost.

Middlebury, Vermont.—June 11, 12.—Light frost, damaging a few beans, tomatoes, &c.

Craftsbury, Vermont.—June 12.—A frost this morning which has cut down corn in some places, especially in the valleys.

Lunenburg, Vermont.—June 10.—Several snow-squalls have passed over, though not enough to whiten the ground. There is quite a bed of snow on the White Mountains, and some hill-tops are whitish. 12th, frost in some localities, but not hard enough to greatly injure vegetation. 13th, frost, but not more severe than yesterday; corn in some places killed, but in many places untouched. 28th, frost in some localities.

Baldwinsville, Massachusetts.—June 11.—Quite a heavy frost last night, in some places destroying corn, beans, &c. In some cornfields there are some hills a part cut down, while some were not apparently touched by the frost. Sometimes a whole hill destroyed, some with not one blade touched. 13th, heavy frost last night, especially on low lands; clothes that were out all night were frozen stiff.

Mendon, Massachusetts.—June 10.—Frost in low lands, killing beans and squashes, and young sprouts where trees were cut last winter.

Sandwich, Massachusetts.—June 11.—There was a frost last night which was quite severe in some localities. In a deep hollow about a mile from the southern part of the village I saw young hickory shoots five inches in length entirely frozen through and killed. On some of the smaller trees not a leaf was left. The oaks also suffered to a less extent. In the village of Snake Pond, five or six miles south of us, the frost was light, but severe enough to kill beans. I have heard of no gardens in this village which were harmed.

Newbury, Massachusetts.—June 11, 12.—Some frost in low places.

Topshfield, Massachusetts.—June 11.—Frost; ice formed; 12th, light frost.

Providence, Rhode Island.—June 11.—Frost in low ground in this vicinity this morning, sufficient to kill tender plants.

Columbia, Connecticut.—June 9.—There was a slight frost on low land this morning.

Jamestown, New York.—June 12.—This morning snow was found in the vicinity of the village in quantities sufficient to make into snow-balls. It lay mainly upon boards; that upon the ground was mostly melted. On the morning of the 13th, upon all the low lands there was heavy frost, killing corn, biting potatoes, and injuring grass very materially.

Palermo, New York.—June 10.—A slight frost, not enough to kill.

Theresa, New York.—June 10, 11.—Moderate frost, doing but little damage.

Moriches, New York.—June 11.—Frost this morning on the fences, straw, mill-roof, &c.

Seneca Falls, New York.—June 11, 12, 13.—Light frost in the morning.

Palmyra, New York.—Slight frost on the nights of June 10 and 12 on low lands.

Nichols, New York.—June 13.—Had frost in the morning, doing but little damage; corn and beans showed it a trifle; 14th, light frost seen on boards, rails &c; 28th, a little frost seen on boards and timbers; 29th, quite a hard frost, boards white.

Clinton, New York.—June 10.—Light frost this morning, not sufficient to injure vegetation. Have heard that considerable injury was done in New Hartford, an adjoining town.

Gouverneur, New York.—June 9.—A slight frost this morning; some little damage done to vegetation. Slight frost again on the 10th and 28th.

Wilson, New York.—June 10.—Quantities of ice reported floating down Lake Ontario to day.

Haddonfield, New Jersey.—June 10, 11, 12.—Very low temperature, nearly to the verge of frost, though none was observed. The low temperature mildewed the leaves and fruit, both exposed and under glass.

New Brunswick, New Jersey.—June 10.—Frost last night, killing leaves and tender shoots of white oak, near swampy valleys; said to have killed whortleberries.

Elmting, Pennsylvania.—June 11.—A light frost this morning; 13th, pretty sharp frost this morning; did but little damage to vegetables, however.

Blairsville, Pennsylvania.—June 5, 7, 9, 13.—Frost each day; did no harm to vegetation.

Tioga, Pennsylvania.—June 11.—Heavy fog; hard frost on the upland where there was no fog; did but little damage; 13th, hard frost again last night on the upland; fog kept it off the lowland. Killed cucumbers, beans, &c., in gardens; did not injure the fruit much.

Connelville, Pennsylvania.—June 12.—Frost this morning.

Urbana, Ohio.—June 11.—Very light frost; no damage done.

New Lisbon, Ohio.—June 11, 12, 13.—Frost apparently hard, but doing little damage; a few tender vegetables on low ground were nipped.

East Fairfield, Ohio.—June 7, 19.—Fences white with frost, and tender plants killed on low ground.

Welshfield, Ohio.—June 7, 10, 11.—Light frosts; no harm done except on very low lands.

Pontiac, Michigan.—June 7.—Ice in the morning; vegetation not injured; 11th, frost.

Newcas'le, Indiana.—June 11.—Light frost this morning; no damage done.

Pennville, Indiana.—June 12.—Frost; grass frozen in places; 13th, frost, not so hard or general as yesterday morning.

Sandwich, Illinois.—June 6, 11.—White frost, did little or no damage.

Tiskilwa, Illinois.—June 7.—Frost this morning so as to partly kill corn-blades in bottom land. Some frost on high ground, but not to hurt anything.

Athens, Missouri.—June 2.—Frost enough last night to bite vines, kill some of the hickory leaves, and turn the corn yellow. Thermometer at 7 a. m. on the 1st, 31°; at 7 a. m. on the 2d, 22°. The coldest day of the month, subsequent to the 3d, was the 12th.

Bloomfield, Wisconsin.—June 6.—Frost; injured melons, beans, tomatoes, and potatoes.

Embarras, Wisconsin.—June 7.—Frost this morning hard enough to nip beans a little; 10th, slight frost; 11th, very hard frost, killing beans, and damaging corn, potatoes, &c; 12th and 13 h, slight frost.

Green Bay, Wisconsin.—June 11, 12.—Late frost; a part of the early sugar corn, beans, and potatoes destroyed.

Lebanon, Wisconsin.—Frost every morning from the 9th to the 14th of June, inclusive. On the morning of the 11th, ice formed an eighth of an inch thick; corn injured considerably, potatoes also damaged.

Manitowoc, Wisconsin.—June 7.—Frost; grapevines not sheltered killed; potatoes the same. Frost also on the 10th, 11th, 12th, 13th, 14th.

Milwaukee, Wisconsin.—June 9, 11.—Frost both days.

Fort Madison, Iowa.—June 12.—Frost this morning; ice formed on water; vegetation not hurt.

Independence, Iowa.—June 6, 11.—Frost on both these mornings.

Waterloo, Iowa.—June 12.—A little frost in low spots; no damage done.

Pleasant Plain, Iowa.—June 12.—Frost; injured beans on low grounds.

Mount Pleasant, Iowa.—June 11, 12.—A slight frost, but not enough to do any damage. It was mostly confined to low places, and killed only a few corn-blades.

Lyons, Iowa.—June 10, 11, 12.—Slight frost on the bottoms.

Algona, Iowa.—June 6.—Quite a severe frost, doing considerable damage, particularly to vines, beans, pumpkins, &c. June 10, another frost, but not quite so severe.

Beaver Bay, Minnesota.—June 6, 11.—Slight frost; no injury done.

St. Paul, Minnesota.—June 6, 7.—Frost on both mornings, injuring pastures, and in some instances gardens.

DROUGHT.

Gardiner, Maine.—June has been very dry, the average of the month for the last twenty-six years being 3.286 inches; this year 0.900. The smallest amount of moisture in June in any of those years hitherto was, in 1853, 0.952. There have been but four instances of any month so dry, viz: March, 1856, the same; April, 1844, 0.653; May, 1852, 0.360; May, 1860, 0.872.

Providence, Rhode Island.—The amount of rain in June was less than one-third of the average quantity for a period of thirty-three years; and the amount for the six months ending June 30 was 2.67 inches less than the average for the same period.

Sacramento, California.—The amount of rain for June was equal to the average, but the preceding winter had been remarkably dry, and the whole season has been the driest, except 1850-'51, of any on Dr. Logan's record. The amount from September 1, 1863, to June 30, 1864, was 7.78 inches, which is about ten inches less than the average for the preceding eleven years.

JULY.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for July, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Perry	Washington	Wm. D. Dana	27	86	1	45	63.8	1.33
Steuben	do.	J. D. Parker	31	84	16, 23, 25	57	.....	1.15
Blue Hill	Hancock	H. H. Osgood	31	91	1	50	67.8	.....
Lee	Penobscot	Edwin Pitman	14, 19, 20	90	22	47	69.6	1.87
Gardiner	Kennebec	Rev. F. Gardiner	20, 31	88	1, 2, 3, 22, 23, 28	58	68.0	0.59
West Waterville	do.	B. F. Wilbur	20, 31	88	22	58	70.8	1.35
Lisbon	Androscoggin	Asa P. Moore	31	93	2, 28	56	69.1	0.62
Cornish	York	Silas West	19	92	2	50	67.5	0.60
Cornishville	do.	G. W. Guptill	19	93	2	55	72.0	0.66
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	19	88	22	50	65.0	3.05
Shelburn	do.	F. Odell	19	98	28	48	72.8	.....
North Littleton	Grafton	Rufus Smith	19	87	22, 23	47	64.5	1.50
Barnstead	Belknap	Charles H. Pitman	19	95	2	55	71.5	0.85
Claremont	Sullivan	Arthur Chase	20	95	22	50	73.0	1.80
Do.	do.	Stephen O. Mead	19	94	9, 22	54	71.4	.....
VERMONT.								
Lunenburg	Essex	H. A. Cutting	19	95	22	41	72.0	2.09
Craftsbury	Orleans	James A. Paddock	18	89	22	50	65.5	2.76
Calais	Washington	Jas. K. Tobey	19	89	22	48	66.7	.....
Burlington	Chittenden	Rev. McK. Petty	19, 31	85	22	53	68.3	2.85
Middlebury	Addison	H. A. Sheldon	31	94	22	55	72.5	1.25
MASSACHUSETTS.								
Sandwich	Barnstable	N. Barrows, M.D.	27	86	14, 15, 22	58	69.3	1.73
Newbury	Essex	John H. Caldwell	20	93	22	55	70.6	.....
Topsfield	do.	A. N. Merriam	20, 31	90	14	51	69.9	1.16
New Bedford	Bristol	Samuel Rodman	29	82	22	57	67.0	1.45
Mendon	Worcester	J. G. Metcalf, M. D.	20	90	22	53	71.4	1.80
Baldwinsville	do.	Rev. B. Dewhurst	19	87	22	52	69.2	1.42
Worcester	do.	H. C. Prentiss	2, 3, 31	88	22	58	67.8	1.68
Amherst	Hampshire	Prof. E. S. Snell	20	92	26	54	71.5	0.96
Springfield	Hampden	J. Weatherhead	31	100	22	45	72.1	1.22
Westfield	do.	Rev. E. Davis	11, 20, 31	90	23	53	71.4	1.44
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	31	86	22	57	69.7	2.20
Columbia	Tolland	Wm. H. Yeomans	31	94	22	56	74.2	.....
Middletown	Middlesex	Prof. John Johnston	31	96	23	54	73.4	0.68
Colebrook	Litchfield	Charlotte Rockwell	20, 31	92	22	53	71.2	.....
NEW YORK.								
South Hartford	Washington	G. M. Ingalsbe	18, 31	93	23	61	75.4	1.95
North Argyle	do.	George M. Hunt	19	92	21	52	71.4	2.96
Fishkill Landing	Dutchess	Wm. H. Denning	11, 17, 19, 20, 31	90	22	58	71.8	2.37
Garrison's	Putnam	Thos. B. Arden	6, 20	85	22, 23	59	72.0	2.85
Throg's Neck	Westchester	F. M. Rogers	31	92	22	61	67.3	2.11
Deaf and Dumb Asy.	New York city	Prof. O. W. Morris	31	92	25	65	78.5	3.20
St. F. Xavier's Coil.	do.	Rev. J. M. Aubier	28, 31	91	22	60	75.4	1.20
Flatbush	Kings	Eli T. Mack	31	93	23	59	74.2	2.30
Schenectady	Schenectady	Harman V. Swart	11, 19, 20, 31	94	22	59	75.6	.....
Gouverneur	St. Lawrence	C. H. Russell	18, 19	92	22	54	71.1	0.74
Clinton	Oneida	H. M. Paine, M. D.	19	100	22	56	75.6	2.39
South Trenton	do.	Storrs Barrows	.....	.....	.....	.....	.....	2.70
Theresa	Jefferson	S. O. Gregory	18	93	22	56	71.1	0.76
Oswego	Oswego	Wm. S. Malcolm	18	88	4	58	68.9	1.00
Palermo	do.	E. B. Bartlett	18, 19, 31	97	23	54	76.6	.....
Skaneateles	Onondaga	W. M. Beauchamp	31	93	22	51	71.3	.....

Temperature and rain of July, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK.—Cont'd.								
Auburn	Cayuga	John B. Dill	18, 19, 31	98	22, 23	60	78.8	In.
Nichols	Tioga	Robert Howell	1, 20	96	22, 23	50	73.1	.....
Palmyra	Wayne	Stephen Hyde	18	96	22	56	74.1	.....
Rochester	Monroe	M. M. Mathews, M.D.	19, 31	94	23	57	73.3	1.66
Wilson	Niagara	E. S. Holmes, D.D.S.	31	100	2, 21, 25	62	75.0	.....
Buffalo	Eric	William Ives	18	96	22	58	73.3	1.50
Jamesstown	Chautauque	Rev. S. W. Roe, M.D.	31	97	22	59	72.2	4.50
NEW JERSEY.								
Newark	Essex	W. A. Whitehead	31	90	23	53	72.5	3.74
Mount Holly	Burlington	M. J. Rhees, M.D.	31	89	23	56	72.1	.....
Progress	do	Thomas J. Beans	31	94	22	59	74.9	3.07
Burlington	do	John C. Deacon	11	89	23	52	73.2	2.20
Haddonfield	Camden	James S. Lippincott	31	91	23	58	74.4	3.12
Greenwich	Cumberland	Clarkson Sheppard	12	88	22	51	71.1	2.14
PENNSYLVANIA.								
Nazareth	Northampton	L. E. Ricksecker	29, 31	96	23, 24	56	76.1	.....
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	31	94	22	61	77.6	3.64
Germantown	do	Thomas Meehan	1, 31	96	6	61	.....	.....
Fallsington	Bucks	Eben'r Hance	31	91	23	57	75.0	2.10
Moorland	Montgomery	Mess Anna Spencer	31	91	22, 23	54	72.7	4.47
Silver Spring	Lancaster	H. G. Bruekhart	30, 31	94	22	54	76.0	.....
Mount Joy	do	J. R. Hoffer	31	101	23	60	80.6	1.85
Berwick	Columbia	John Egert	31	94	23	55	74.4	2.44
Harrisburg	Dauphin	John Heisely, M. D.	30	92	23	61	78.3	5.18
Tioga	Tioga	E. T. Bentley	31	100	23	48	74.2	2.50
CConnellsville	Fayette	John Taylor	17, 19	94	22	50	77.5	.....
Pennsville	Clearfield	Elisha Penton	17	89	4, 23	45	71.6	4.16
Blairsville	Indiana	W. R. Boyers	20, 27	95	1	50	73.0	6.06
Canonsburg	Washington	Rev. W. Smith, D. D.	30	90	23	47	71.0	2.83
DELAWARE.								
Wilmington	Newcastle	U. D. Hedges, M.D.	28, 29, 31	94	22	58	76.8	4.60
MARYLAND.								
Chestertown	Kent	Prof. J. R. Dutton	31	96	22	63	78.2	1.05
Annapolis	Anne Arundel	Wm. R. Goodman	26	100	11	57	72.7	1.74
St. Mary's	St. Mary's	Rev. J. Stephenson	8, 30	92	4	65	78.8	0.93
Sykesville	Carroll	Miss H. M. Baer	29, 30	90	22	55	74.7	1.25
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	29, 31	93	23	59	77.9	1.57
SOUTH CAROLINA.								
Hilton Head	Beaufort	Lieut. C. R. Suter	2	101	25	70	83.9	4.29
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	29	96	23	47	79.6	2.13
OHIO.								
Austintburg	Ashtabula	David S. Alvord	19	92	3	57	74.0	3.43
East Fairfield	Columbiana	S. B. McMillan	18	93	23	51	73.9	1.31
Welshfield	Geauga	B. F. Abell, A. M.	31	94	22	56	74.5	5.13
Milnersville	Guernsey	Rev. D. Thompson	30	99	22	46	.....	0.60
Cleveland	Cuyahoga	Mr. and Mrs. Hyde	18	92	23	61	75.0	1.66
Wooster	Wayne	Martin Winger	30	96	22	55	76.2	.....
Kelley's Island	Eric	Geo. C. Huntington	29, 30	90	22	65	76.2	4.21
Gallipolis	Gallia	A. P. Rogers	30	94	22	54	74.6	2.70
Norwalk	Huron	Rev. A. Newton	30	91	22	56	72.8	3.53
Kingston	Ross	Prof. Jno. Haywood	30	98	22	60	78.2	1.60
Portsmouth	Sciota	L. Engelbrecht	30	92	23	55	78.2	0.48
Urbana	Champaign	Prof. M. G. Williams	29, 30	95	22	55	74.5	0.84
Hillsborough	Highland	J. McD. Mathews	30	97	23	56	75.6	1.63
College Hill	Hamilton	I. H. Wilson	30	94	23	62	78.1	3.10
Do	do	John W. Hammitt	30	98	23	60	79.6	3.00
Cincinnati	do	G. W. Harper	30	99	23	57	79.6	1.25

Temperature and rain of July, 1864—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MICHIGAN.								
Pontiac	Oakland	Jas. A. Weeks	30	93	4, 22	56	72.9	In.
Moaroe City	Monroe	Miss F. E. Whelpley	29	88	22	62	73.8	1.07
Ypsilanti	Washtenaw	C. S. Woodard	30	95	22	59	74.5	1.79
Agricultural College	Ingham	Prof. R. C. Kedzie	29, 30	96	22	56	74.5	1.25
INDIANA.								
Pennville	Jay	Miriam Griest	29	99	21	56	76.7	.....
Spiceland	Henry	William Dawson	30	100	22	58	77.2	2.10
New Castle	do	Thomas B. Redding	29	97	5	58	77.3	0.51
Madison	Jefferson	Rev. Samuel Collins	30	95	5, 25, 26, 27	68	82.0	0.75
New Albany	Floyd	E. S. Crozier, M. D.	11, 29	95	23, 24	58	78.4	0.28
South Bend	St. Joseph	Reuben Burroughs	30	96	22	57	72.7	2.58
Indianapolis	Marion	Royal Mayhew	29	97	23	58	77.3	0.43
Rensselaer	Jasper	J. H. Loughbridge	30	95	23	62	80.4	2.49
New Harmony	Poscy	John Chappellsmith	1	96	23	62	80.4	2.49
ILLINOIS.								
Evanston	Cook	H. W. Seovill	29, 30	91	1	69	71.4	3.55
Riley	McHenry	E. Babcock	30	92	21	56	72.2	11.12
Sandwich	De Kalb	N. E. Ballou, M. D.	29, 30	95	21	51	74.5	8.78
Ottawa	La Salle	Mrs. E. H. Merwin	9	104	21	55	76.0	2.94
Winnebago	Winnebago	James W. Tolman	30	94	21	59	74.0	5.83
Tishkila	Bureau	Verry Aldrich	19	98	21, 22, 23	62	75.2	.....
Wyand	do	E. S. Phelps, jr.	29	97	22	49	86.6	.....
Hennepin	Putnam	Smiley Sheppard	30	95	22	50	74.4	.....
Peoria	Peoria	Frederick Brendel	29	98	22	59	78.0	2.92
Pekin City	Tazewell	J. H. Riblett	29	97	24	57	77.6	5.04
Hoyleton	Washington	J. Ellsworth	17, 18, 29	100	22	60	81.2	6.00
Waverley	Morgan	Timothy Dudley	19	97	22	62	79.0	2.15
Galesburg	Knox	Prof. W. Livingston	17, 29	92	2	60	75.3	3.40
Manchester	Scott	Dr. J. & Miss E. Grant	19	97	21, 22	61	77.9	2.03
WISCONSIN.								
Milwaukee	Milwaukee	I. A. Lapham, L.L.D.	30	94	22	52	71.3	7.07
Green Bay	Brown	Friedrich Decker	30	94	2, 21	56	72.6	3.22
Geneva	Walworth	Wm. H. Whiting	9, 29, 30	89	1	56	72.7	.....
Embarrass	Waupaca	J. Everett Breed	30	99	3	40	72.0	3.35
Waupaca	do	H. C. Mead	29, 30	96	1, 21	60	76.3	.....
Beloit	Rock	William Porter	29	94	21	58	73.8	6.63
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	29, 30	92	2	55	73.3	4.01
Tamarack	Hennepin	Mary A. Grave	29, 30	93	21	65	77.9	2.03
IOWA.								
Lyons	Clinton	Dr. P. J. Farnsworth	19, 29	96	22	58	75.3	4.85
Dubuque	Dubuque	Asa Horr, M. D.	17	96	22	60	77.0	2.02
Monticello	Jones	Chauncey Mead	16	95	21	58	75.0	3.29
Muscataine	Muscataine	J. P. Walton	18	96	21	55	75.3	3.25
Independence	Buchanan	A. C. Wheaton	18, 29	98	21, 22	57	76.1	8.80
do	do	D. S. Deering	17	98	2, 21, 22	62	76.0	.....
Iowa City	Johnson	T. S. Parvin, A. M.	17, 29	94	3	55	76.0	4.85
Mount Pleasant	Henry	Rev. E. L. Briggs	17	99	22	60	78.0	6.25
Waterloo	Black Hawk	T. Steed	18	94	2	58	76.9	2.75
Iowa Falls	Hardin	N. Townsend	18	91	2	59	69.7	5.70
Algona	Kossuth	Dr. and Miss McCoy	28	97	2	56	74.1	4.13
Onawa	Manowa	Rich. Stebbins, M. D.	18	97	21, 23	58	76.6	.....
MISSOURI.								
Allenton	St. Louis	Augs. Fendler	6, 18	109	24	54	77.3	0.14
Athens	Clark	I. T. Caldwell	17	102	23	65	81.7	.....
Canton	Lewis	George P. Ray	9	100	23	58	79.4	7.48
Harrisonville	Cass	John Christian	10	101	22	64	82.8	3.50
NEBRASKA TER.								
Elkhorn City	Washington	Miss A. M. J. Bowen	18	100	2	60	77.1	.....
Bellevue	Sarpy	Rev. Wm. Hamilton	17, 18	93	2	60	77.9	0.74
KANSAS.								
Olathe	Johnson	W. Beckwith	6, 9, 18, 28	99	23	55	77.3	5.36
Manhattan	Riley	H. L. Denison	7, 18	101	23	61	82.0	3.02
Fort Riley	Davis	Elford E. Lee	18	104	12	60	85.3	2.28

Table showing the average temperature and fall of rain (in inches and tenths) for the month of July in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Averages, 1855.		Averages, 1856.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
	Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.		Mean, temp.	
	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	67.9	2.6	67.2	3.6	67.7	4.6	67.3	2.4	67.5	3.9	67.7	3.9	68.3	1.02
New Hampshire.....	71.8	4.7	71.5	4.3	67.5	4.1	67.9	3.5	69.6	3.4	68.3	3.4	69.7	1.80
Vermont.....	69.6	6.2	70.7	5.0	67.8	4.9	66.5	1.6	69.1	4.2	69.2	4.2	69.7	2.22
Massachusetts.....	71.4	5.8	70.2	4.7	69.2	4.5	68.7	2.1	70.3	3.9	69.3	3.9	70.0	1.43
Rhode Island.....	72.9	3.3	69.9	3.5	69.5	4.9	68.2	1.1	70.8	3.4	70.4	3.4	70.8	1.44
Connecticut.....	71.8	5.8	69.7	6.8	69.5	3.5	68.1	2.0	70.4	4.2	72.2	4.0	73.5	2.28
New York.....	72.1	4.8	72.0	4.1	71.9	4.6	69.2	3.3	71.7	4.0	72.8	4.0	73.0	2.83
New Jersey.....	76.2	4.5	73.0	6.1	74.4	3.4	72.0	4.0	74.6	4.0	75.8	3.5	75.2	3.52
Pennsylvania.....	76.4	3.8	70.2	3.6	76.1	3.1	73.4	2.8	74.5	3.7	73.6	3.7	76.8	4.00
Delaware.....	77.0	3.2	75.5	3.8	80.4	1.3	.....	.....	78.0	3.3	76.7	3.3	76.1	1.24
Maryland.....	73.0	4.1	74.3	4.4	77.9	3.0	74.5	2.5	76.4	4.0	76.4	4.0	77.9	1.37
District of Columbia.....	80.9	4.2	74.7	5.4	78.3	5.0	76.1	1.6	77.4	4.2	76.4	4.2	83.9	4.29
South Carolina.....	77.5	5.8	81.6	7.0	80.1	6.6	78.9	1.3	79.8	5.3	.....	.....	.....	.....
Tennessee.....	78.1	3.0	79.4	4.6	78.1	3.9	78.5	2.3	77.6	4.1	.....	.....	.....	.....
Kentucky.....	74.7	5.8	76.0	4.7	78.5	4.8	78.2	1.6	77.5	3.6	73.3	3.6	79.6	2.13
Ohio.....	76.1	8.8	72.3	2.9	73.9	3.0	74.4	1.8	75.1	3.9	73.0	3.9	76.1	2.34
Michigan.....	77.7	7.0	79.3	2.8	72.9	2.3	70.7	1.4	72.7	3.6	63.6	3.6	73.7	1.37
Indiana.....	76.3	6.2	76.3	2.1	75.3	5.9	77.8	1.9	77.3	3.9	72.6	3.9	77.8	1.31
Illinois.....	72.0	3.7	68.3	2.6	70.9	5.3	73.0	2.2	76.2	3.2	73.6	3.2	76.7	4.89
Wisconsin.....	72.0	3.7	67.1	2.0	68.7	8.8	70.0	4.2	71.6	4.2	68.5	4.2	72.7	3.07
Minnesota.....	70.2	4.8	76.3	1.0	73.9	8.3	75.7	4.3	72.6	4.8	72.5	4.8	73.3	4.59
Iowa.....	74.3	5.2	63.6	2.9	73.9	2.9	78.9	5.5	70.8	4.4	76.9	4.4	80.2	3.71
Missouri.....	79.6	5.2	76.8	3.3	82.2	2.9	77.7	1.8	77.1	6.4	71.8	6.4	77.5	3.74
Nebraska Territory.....	.....	.....	76.7	1.7	76.6	15.8	80.7	3.7	80.8	4.3	76.3	4.3	83.6	3.55
Kansas.....	.....	.....	81.2	3.2	80.6	6.0	80.7	1.3	.....	.....	.....	.....	.....	.....
California.....	.....	.....	69.7	0.0	69.4	0.0	66.9	1.3	67.6	0.3	.....	.....	.....	.....
Av. number of places.	6	9	4	4	4	4	4	4	4	4	4	4	4	4

DROUGHT AND FIRES IN JULY.

Subjoined are a few notices of the extensive drought which prevailed in June and continued through July; also of the "smoky" or "hazy" atmosphere which attracted so much attention, and the cause of which is apparent when the accounts are brought together.

Waterville, Maine.—July 17.—Very smoky, fires doing much damage in Aroostook county, distant one hundred miles southeast, burning buildings, fences, woodland, and destroying grain and grass fields. July 24, quite smoky, so much so as nearly to obscure the sun's rays in the morning and evening. Fires rage in almost every direction; one eight miles, at South Belgrade, in a peat bog. July 30, yet smoky as ever. The air has scarcely been clear of the scent and vapor of smoke during the last ten days; fires continue to rage as bad as ever. The later crops are failing for want of rain.

Lisbon, Maine.—July 23.—Fires raging in many places in the woods. Near Bath a barn with twenty tons of hay was destroyed. Bog in Durham burning; drought severe; corn rolling up in many places. 31st. The smoke has been so dense much of the time since the 13th as to obscure the sun some days entirely, and I think there have been but three days that I could not look at the sun directly without glasses.

Bluehill, Maine.—From the 23d to the close of the month the heavens were so smoky that the kind of cloudiness could not be noted. Numerous fires are raging in the State. The oldest inhabitants all concur in saying that in no previous July has there been so little rain and fog.

Gardiner, Maine.—The most remarkable feature of the month has been the continued and increased severity of the drought. There has been a remarkable absence of dew, and the small amount of rain appears by the following comparison:

Average moisture for July for twenty-five previous years.....	3.369
Minimum during the same period.....	1.472
Amount for July, 1864.....	0.588
Average for June and July together, for twenty-five previous years..	6.751
Minimum during the same period.....	3.264
Amount of June and July, 1864.....	1.488

The amount for July, and also for June and July combined, is less than half the lowest amount recorded in any previous year for twenty-five years. Very destructive and extensive fires have occurred in consequence, and are still raging.

Claremont, New Hampshire.—Unparalleled drought during this month, which did not cease till some days into August.

Shelburne, New Hampshire.—July 23.—Fires in all directions; evening very smoky. 24th. Smoke more dense than yesterday. 30th. Smoke settled into the valleys this evening.

Lunenburg, Vermont.—July 23, 24.—For many years we have not had two days so smoky. Extensive fires are burning in the woods around us, and the extreme drought is favorable for their spreading very rapidly.

Worcester, Massachusetts.—July 24.—Smoky all day.

Westfield, Massachusetts.—The most remarkable phenomena of this month are the heat and dryness. The thermometer has not risen higher than during the same month in previous years, but the heat has been more constant. In July, 1864, the thermometer was 80° or upwards 17 times; in 1863, 8 times; in 1862, 10 times.

Springfield, Massachusetts.—In 52 days, June 3 to July 24, inclusive, there

fell at this place but 77 hundredths of an inch of rain. On the 25th the drought was broken by 65 hundredths of an inch; since then no rain has fallen, and the drought continues up to this, August 1. For some days previous to the 25th the atmosphere was of a very hazy and smoky appearance. So severe a drought has not prevailed here for the last seventeen years, and perhaps not for some years previously.

Pomfret, Connecticut.—July has been very dry; the earth more parched, and streams and springs lower than at any period since 1852; yet we had more rain from April 1 to July 11 than we had last year, but the air has been dry and the per-centage of vapor much less.

Jamestown, New York.—July 31.—This month has been the warmest, and brought the severest drought known here for many years.

Palermo, New York.—July 17.—Smoky atmosphere, vegetation suffers dreadfully for rain; 21st, very smoky, drought continues; 27th, smoky. After a remarkably wet spring, we have had the driest summer within the memory of the oldest inhabitant in this region.

Palmyra, New York.—July 31.—Everything is suffering much from the drought. A great amount of haze since the 21st, which some attribute to the burning of wheat-fields, grass and wood, as it has been so dry that they have taken fire accidentally.

Nichols, New York.—July 31.—Susquehanna river and all small streams lower than ever seen before.

Progress, New Jersey.—July 19 to 30.—Haze constant, and at times very dense, so as to prevent observation on motion and forms of clouds, save on the 25th, frequently like thick smoke; sun shining dimly through it.

Haddonfield, New Jersey.—July 21.—A heavy smoke around, supposed to arise from extensive fires among the woods near the Atlantic railway. 22d, 23d, 24th, the same smoky haze prevailed; sky apparently clear of clouds, but observed with difficulty through the smoke and haze.

Newark, New Jersey.—In this region, for several days prior to the 25th, there was a remarkable dense haze or smoke, which came to us with a northwest wind, that increased the dryness of the atmosphere, and by frequently obscuring the heavens gave additional sombreness to the parched landscape. This smoke was undoubtedly owing to extensive conflagrations in the woods and waste ground of central New York. From the 27th of May to the 24th of July, inclusive, only two inches and forty-three hundredths of rain had fallen, and although several other droughts of equal length have been recorded by the writer during the last twenty years, yet very few have equalled that recently experienced, in extent and severity combined, as it seems to have pervaded the entire belt of country north of the Ohio and eastward of the Rocky mountains.

Canonsburg, Pennsylvania.—July 15 to 24.—Smoky.

Horesham, Pennsylvania.—July 22.—There has been a singular state of the atmosphere for several days past, no clouds, but apparently a thick haze, through which the sun appears red, and without rays, but still the weather is unusually cool for the time of year, and very dry.

Silver Spring, Pennsylvania.—July 21 to 24.—Very thick haze. The sun and moon appeared to hang in the heavens like balls of fire, and the atmosphere appeared as though charged with heavy smoke. Could not distinguish objects at half a mile distance; 26th and 27th, hazy like the preceding days.

Berwick, Pennsylvania.—The Susquehanna lower at the Berwick falls than for the last twenty years.

Chestertown, Maryland.—July 19.—The drought still continues; the grass is dying out, and the corn crop is at least half gone. 24th. The atmosphere has been so full of smoke for the last four days as to completely obscure the sun when within fifteen degrees of the horizon; objects at a distance of half a

mile are entirely hidden. I suppose this comes from the extensive fires north of here, in New Jersey and elsewhere.

Urbana, Ohio.—July 21, 22.—A peculiar bluish, smoky and hazy atmosphere, similar to that of June 27.

Cleveland, Ohio.—July 22.—Thin stratus and smoky.

Westfield, Ohio.—July 21 to 31 (except the 25th and 26th) were smoky days, some of them so much so, as partially to obscure the sun.

East Fairfield, Ohio.—July 20, 23.—Indian summer like, sun appearing as through a smoked glass.

Ypsilanti, Michigan.—Very little rain fell here in July, and not a very large amount in June. The drought has been very severe; in some of our streets the sycamore shade trees are shedding their leaves as though it were autumn.

Pontiac, Michigan.—July 20.—Wind changed from north to east between 6 and 7 p. m., bringing dense smoke; 21st, smoky, vegetation suffering from drought; 22d, 25th to 28th, smoky; 29th, thunder shower at 6.30 p. m., wind changed to east, bringing much smoke.

Sandwich, Illinois.—We have had more than the usual amount of rain for July; five inches fell on the 9th and 10th, and three inches on the 18th; in all during the month 8.78 inches.

Fort Riley, Kansas.—July 27, 28, 29.—Quite smoky and foggy until 9 p. m.

Lyons, Iowa.—July has been unusually hot. Plenty of rain fell during the early part of the month; the latter part was very dry. During the first ten days the rain amounted to four and a half inches, and during the last twenty-one days to only thirty-five hundredths of an inch.

FROST.

Baldwinsville, Massachusetts.—July 22.—A slight frost this morning.

Columbia, Connecticut.—July 22.—A frost on the low lands this morning.

Tioga, Pennsylvania.—The night of the 22d of July was unusually cold. At 5 a. m. the mercury was at 40°, and there was quite a frost on the upland in some places, but no injury.

BI-MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

SEPTEMBER AND OCTOBER,

1864.

WASHINGTON:
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1864.



BI-MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,

Washington, October, 1864.

In submitting the present Bi-monthly Report to the public, the Commissioner of Agriculture directs attention to the fact that it contains tables of the leading crops of 1864, stated in bushels, &c., as well as the usual tables presenting a condensed summary of the returns of the correspondents of this Department, showing the amount of a still greater number of crops in *tenths*. The first of these tables also shows the amount of the crops of 1862 and 1863, in bushels, &c., as estimated heretofore by the Department. They are so arranged that a comparison between these years can be made of the crops of each of the loyal States.

The Commissioner deems it but justice, both to the public and to his correspondents, in publishing these tables, to set forth the manner in which they are compiled. Confidence in their general correctness is necessary to the purposes for which they are prepared, and that confidence can be obtained only in two ways—by that trial which subsequent commercial transactions create, and by a knowledge of the plan, care, and skill with which they are formed.

The plan itself has heretofore been fully stated. In nearly every county of the loyal States the Department has a chief correspondent, aided by from three to five assistants. Nearly all the former have now had an experience of about eighteen months, and many of the latter of from four to eight months. Nothing is clearer to the Commissioner than the necessity of such experience. His correspondents, too, are selected chiefly from those whose knowledge and associations are of the farm, and whose zeal is quickened by the interest they feel in their own pursuit. These are essential qualifications to those communicating information of the crops.

When the present system of reporting the condition of the crops from month to month was first tried, many returns had to be discarded, because of want of information in those who kindly made them. This was seen in the omission to answer many questions, and in letters accompanying the returns, in which the correspondents frankly stated that many of the answers were guesses only. But the knowledge and information necessary to a correct opinion were gradually obtained, and with them awoke a lively interest in the work in which they were engaged. There exists, consequently, no longer doubt, and in but few cases even hesitancy, and then only in peculiar cases.

But the final tables of the crops, showing their amount in bushels, &c., are not based on a *single* return of the correspondents, however well trained, and numerous as those of this Department are, but on *several*. Take as an example the wheat crop. In the fall, the amount sown, its growing condition, its injuries from the fly, or other cause, are ascertained. In March following, the

injury by freezing is learned ; its growing condition from that time until harvested is carefully reported to the Department ; when harvested, its supposed amount as compared with a previous year, its quality, the amount of the injuries it has received, and the causes of those injuries are likewise reported ; and, finally, after it is threshed, the amount is again reported. When the final tables are to be made, all these returns are compared, the large correspondence accompanying them is examined, and from all these tables are made up.

Here let me remark that my own long practical experience and observation in agriculture, for a period of over forty years, has given me to understand the wants of the agricultural interests of our country ; and hence the necessity for placing the facts and conditions of the crops before the farmers of the United States, that they may understand the true condition of the agricultural products of the various sections of the country, and govern themselves accordingly.

But, again : These tables are based upon clear and definite returns. The statements are not that such a crop is "larger," "usual," "average," "equal," "light," "good," "small," and so on, or given in fourths, or thirds, or halves, the lowest of which often mean, in our great American farming, millions of bushels, but the returns to this Department are stated in *tenths*, conveying precise, clear, definite ideas, and quantities so small that their fractions used in the summaries of the crops of each State represent such small quantities that an approximation to correctness is secured.

Nor is it of less importance to have as clear and definite a standard of comparison. The usual standard is an "average" crop. But what is an *average* crop is a question that would be answered very differently by correspondents. By reference to the questions of this Department it will be seen that they ask a comparison with crops of certain years, the amounts of which have been published by the Department. As soon as the Department can properly fix for each crop, in each State, the amount per acre, constituting an average or normal crop, it will do so, and then such standard will be more precise than even the one now used.

No people is more impatient to see results than those of the United States. This disposition of mind invites in reports of the amount of the crops to premature statements ; but knowing well the vicissitudes of the seasons, that favorable or unfavorable weather usually largely increases or diminishes a crop, this Department does not pretend to foretell, but simply to learn the state of the crops at that time, when ordinarily they are matured or harvested. To "hasten slowly" is a prudent maxim in every affair, but especially in matters of crop reporting in a climate of extremes like that of the United States. Its uncertainty is seen even in the tables of this report, based on information communicated as late as the first day of this month, for doubtless the severe frost of October 9th has injured the sorghum and buckwheat crops.

Whilst thus referring to the reliability of the information derived from the correspondents of the Department, because of their experience and the manifest interest they take in obtaining correct knowledge of the state of the crops, it is but justice to them to remind Congress that this information is communicated gratuitously, save in receiving copies of the reports of this Department, and a

portion of the seeds distributed. It is essential to them that there should be placed in their hands a copy of the unabridged census report on agriculture as soon as it is published, for only this one contains the crop returns of the census for each of the counties of the several States. And in no more useful hands could this report be placed, for they are of our most intelligent farmers, and superior to all others in having their minds imbued with a just appreciation of that statistical knowledge embraced in this census report, and in their duties as correspondents of this Department. The report, when placed in their hands, will not be found with the unused books upon the shelf, covered with dust, but living facts scattered abroad in their respective neighborhoods, and even returned to this seat of government in the more certain knowledge communicated by them to this Department.

Another topic to which the Commissioner asks the particular attention of the farmer is the article on drill and broadcast sowing. It will be found to embody the opinions and experience of many farmers on the question of the best mode of sowing wheat. It is only through agencies such as this Department has, that the wide-spread evils to which our agriculture is liable can be simultaneously noted and reported, and when accompanied with the remedies, which an experience not less wide suggests, they cannot but command the attention of all farmers.

A third subject embraced in the present report, of much interest now, will be found in the article on the state of the foreign grain markets and crops. The knowledge of the facts that France will not probably be able to supply the English markets with wheat and flour during the coming year, that much of the wheat of northern Europe is injured by wet weather, and that the hay, oats, and root crops of Great Britain are a greater failure than has been known to the present generation of English farmers, cannot but prove advantageous to our own agricultural community. The great scarcity of food for farm stock in Great Britain must create an active demand for American Indian corn, and our capability to supply it, at reasonable prices, is shown in the article referred to. Whilst the present crop of corn is less than that of 1862, yet the home demand upon it will be proportionably less, so that the surplus for exportation in 1865 will not be much below that for export in 1863.

Besides the usual statistical tables of exports of domestic produce, and of English imports of grain and textile material, this report contains a table of the number of immigrants to this country at New York during the months of July, August, and September. For this the Department is indebted to the courtesy of Mr. Draper, collector of the port of New York.

The mail communications between the seat of government and the Pacific States and Territories do not allow them to be placed in the tables with those of the Atlantic coast. Hence it is necessary to speak of them in a different way, and what information the Department has of their present season and crops has been given in this report. But it is to be regretted that the information sent is not more extensive and more regularly received.

ISAAC NEWTON, *Commissioner.*

DRILL AND BROADCAST SOWING.

In the bi-monthly report for April and May will be found the returns of the correspondents of this Department of the injury to the wheat crop last winter from freezing, and the proportion of this loss between that sown by the drill and that broadcast. Accompanying these returns were many letters giving facts and opinions relative to these modes of sowing wheat. We now turn to these returns and letters for the purpose of making an examination of the facts, and deducing from them the lessons they teach.

1. *The returns.*—From these, as stated in the bi-monthly report for April and May, the loss may be estimated to the whole crop from freezing, and what portions of it fall upon the drilled and the broadcast sowing.

The wheat crop of 1863 was estimated at 191,068,239 bushels. The Department has as yet no facts from which it can determine what amount of this was winter wheat and what spring wheat. But looking to the territory where each is grown, we believe it is not far out of the way to suppose that one-third is of the latter.

The amount of winter wheat, then, would be, for last year, 127,378,826 bushels. Supposing that the crop as sown last fall would have yielded an amount equal to the crop of 1863, then, according to the returns, $2\frac{2}{5}$ tenths, or 24 per cent., of the winter wheat was destroyed by freezing—this is equal to 30,570,918 bushels. Of this *two* parts were of that sown by the drill, and *three* parts of that sown broadcast. Hence of the entire loss 12,228,366 bushels were of the drill sown, and 18,342,549 bushels of that sown broadcast—a difference of 6,114,183 bushels.

The general average price of wheat in November, 1863, as returned by the correspondents of the Department, was \$1 14 per bushel. The loss, therefore, from broadcast sowing over that of drill sowing was \$7,260,592.

2. *The letters.*—Below we give the facts and opinions stated in many letters, especially from those of the western States, where the injury was very great. As the eastern States suffered but little from cold, the relative merits of the modes of sowing under consideration could not be tested by them, hence no extracts from their correspondence are given.

ILLINOIS.

Perry county.—"The damage to drilled wheat is *one-tenth* less this year than it commonly is. The damage to that sown broadcast is *two-tenths* greater than it has commonly been. The damage to broadcast sown by freezing out is commonly two or three times as great as it is to the drilled."

Winnebago county.—"The portions of winter wheat remaining under the fences look as well as an average. The crop as a whole is almost a total failure, probably less than one-tenth of what was reasonably anticipated last fall. There appears to be no difference between broadcast sowing and drilling; it is all killed alike."

Bond county.—"Of wheat there will be about two-thirds of a crop. Drilled is far superior to the broadcast."

Ogle county.—"Winter wheat is a failure, except where the heavy snow-drifts lay most of the time. Experience shows conclusively that the drill is the only mode of successfully growing winter wheat in this county."

DeKalb county.—"Winter wheat lately doing well; broadcast injured most, and drilled least."

Menard county.—"Last winter fully demonstrated the superiority of drilled over broadcast sowing in Illinois soil for winter wheat."

St. Clair county.—"In relation to the advantage of planting wheat with

drills, it is considered so important by our farmers in this county that you scarcely see a field of wheat sown broadcast. Last winter was so severe upon the broadcast that I do not believe a single farmer will attempt to sow wheat broadcast this fall."

McDonough county.—"As to the relative merits of sowing wheat broadcast or by drill, all I can say is that drilling has gone out of vogue very nearly in the last three years. We used to drill a good deal of our wheat, but of late drills are seldom seen, by which I infer that drilling has not been regarded with much favor."

Jersey county.—"It is only when stumps or corn-stubs are in the way that broadcast sowing is resorted to. Some of our best farmers harrow after the drill, some roll before and after, but the surest way is to have the ground rough enough to mellow down with the frost. I have tried all ways. One year I sowed half a bushel per acre, and harrowed after the drill, and reaped forty bushels per acre. Last year I rolled some after the drill, mashing all the ridges down; it made the poorest wheat I had. The ground alongside, not rolled after, but before the drill, made double the wheat. The theory amongst our farmers is to make the ground solid, leave the drill-ridges to stand, and sow from the 15th to 25th of September."

"As to broadcast and drill sowing for wheat which you speak of, the former is by far the most successful; but to do neither is the most profitable in central Illinois, where twelve bushels of wheat are above the average yield per acre."

INDIANA.

Ripley county.—"The wheat was very much winter-killed, but the warm wet weather has revived it very much; and as regards the difference in drilled wheat and that sown broadcast as to winter-killing, there has not been much drilled in this county, but it shows the superiority of drilling."

Allen county.—"In regard to the difference in winter wheat drilled in or sown broadcast, it is largely in favor of the drilling where the ground is properly prepared. It should be thoroughly pulverized, either by harrowing or rolling, or both if necessary. When the ground is rough and cloddy, it is the experience of our farmers that wheat does better sown broadcast. Few of our farmers in this vicinity realize the great advantages to be derived from the thorough preparation of the soil before planting. To the majority of them under-draining, subsoiling, rolling, and a regular system of cropping and manuring are subjects that receive no attention in preparing for seeding, and the result is always too plainly manifested in short and inferior crops at harvest."

Parke county.—"There is more difference this season than ever before between wheat sown with the drill and broadcast. The drilled is decidedly the best; it will yield one-third more to the acre than the broadcast."

Howard county.—"Our wheat crops are better than ever known since our county has been settled. Drilled wheat is the best, and in the coming year there will be little, if any, sown broadcast."

Huntington county.—"In my report for April and May I felt authorized to say, in reference to wheat sown by drill and broadcast, that that sown by the drill was not apparently injured, while that sown by the other method was seriously. Since that time quite an improvement was made in the appearance of that sown broadcast, and, had we not suffered so severely from drought, our crop would have been above an average. One of our most careful and judicious farmers states that while his drilled wheat seemed to stand the winter better than that sown broadcast, still at harvest this last was the best in every particular. *His broadcast did not suffer much from freezing.* So, too, some others of our observing farmers hold the opinion that if as much care be taken in the prepara-

tion of the soil for broadcast sowing as *must* be done for the drill, there would be no advantage in drilling; perhaps the advantage would be the other way."

Whitney county.—"We suppose wheat much better drilled than sown broadcast, and I am inclined to the opinion that it is best to have it drilled north and south, as our winds mostly come from the west. It saves the snow from being blown away from the roots of the wheat, and the whole field will not sweep as clean of snow as where the drilling is east and west."

Henry county.—"Harvesting of the wheat crop has still further shown the advantages of drill over broadcast sowing. I think the difference may be estimated at the lowest at *one-tenth* in favor of drilling. *Early*-sowed wheat is also much the best, say *one to two tenths*."

OHIO.

Marion county.—"Although on the subject of drilled and broadcast sown winter wheat, I have made considerable inquiry, I have hesitated to make a positive statement. I found on one farm near town that 10 acres were sown broadcast by one person, and 12 acres were drilled in by another, and there was no appreciable difference in the character of the soil—that is, there was about the same proportion of black and clay soil. Now upon the 12 acres of drilled wheat there is three times as much standing in good condition as upon the 10 acres. Going about half a mile further east I found a field of, say 30 acres of wheat, which had been drilled in, but which was such an utter failure that oats have been drilled in upon the field this spring. This field was of a cold, wet, clay soil, perhaps as unfavorable for wheat as could be selected. Another farmer stated that after a crop of flax he had suffered a field to lie in fallow last summer, and in the fall ploughed a part of it; finding it very mellow, he put in his wheat by drill, both that which he had ploughed and that which he had not. This spring it is in excellent condition, all parts being about the same. He had sown the same field in wheat several times before, and on a certain portion of it (perhaps somewhat wet) he had never before raised any wheat, but this year (drilled in) there is no appreciable difference in the whole. I have asked the question of a great number of farmers as to the comparative value of drilled and sown wheat, and the almost uniform answer is in favor of the former—1st, because it is evenly sown; 2d, because it is a protection against the effects of frost. Many, indeed, say they cannot prove this by their own experience, and yet they are decided in their own opinion; only one farmer I met with said he had tried both, and was positively in favor of sowing broadcast, even having in view the effects of the frost."

Two months after, this excellent correspondent thus writes: "The crop of winter wheat last year was very deficient, and consequently, although that of this year was seriously injured, it was still better than the former. Continued inquiries respecting the comparative value of drilled and sowed wheat show the decided advantages of the former. One farmer reports, for example, that he has two pieces, side by side, of like soil, and the drilled portion was injured by frost, say $\frac{1}{10}$, the sown $\frac{5}{10}$. He says that many in his neighborhood ploughed up their *sowed* fields; one field, *sowed* late in August, produced a fine crop."

Clermont county.—"In my report you will see that I have given 8, or 2-tenths, as the average amount destroyed by winter (cold) of that sown by drill, and 6, or 4-tenths, of that sown broadcast. I do not know but what the difference in favor of the drill is greater."

Van Wert county.—"Early and drilled wheat decidedly best."

Hocking county.—"The winter wheat in this county was damaged mostly by the severe winter and winds; where it is protected from the sharp winds it is good, but where it was exposed it amounts to very little. Some of our farmers *ploughed* in their wheat, and such is better than that *harrowed* in."

Warren county.—"There is very little difference in the appearance of the drilled and broadcast; what there is is in favor of the former."

Loraine county.—"The drilled wheat suffered least; mine was drilled, and I have over two-thirds of a crop, whilst my neighbors' is totally destroyed."

Knox county.—"The difference in favor of drilling is not so apparent as usual. Protection from the piercing wind, on the first of January last, had a more favorable influence on the wheat crop than any other cause. Take our county over, and we will scarcely have more than our seed. When I found that my wheat was killed, as the next best thing I procured spring wheat, and at the proper time put it in with a drill running crosswise of the last fall's drilling, thus leaving the old to grow with the new. I have just finished cutting a No. 1 crop of wheat; I cannot tell how much per acre, but the crop is a good one in quantity and quality. If that course had been generally pursued, the advantage to the country would have been immense."

Defiance county.—"Drilled wheat has done very well, and shows its good effects this season. Late-sowed wheat is not so good as usual. I think there are at least $\frac{5}{10}$ difference, and in favor of drilled wheat."

IOWA.

Des Moines county.—"The winter wheat was frozen in the ground; therefore no difference between that sown broadcast and by the drill."

Dallas county.—"Drill sowing is decidedly the best, and rolling the ground heavily afterwards would have been an effectual remedy this season. Fields treated thus suffered but little." [We suppose our correspondent speaks of rolling in the spring, and not immediately after the drilling.]"

Floyd county.—"One of my assistants says he had some experience in drilling spring grain. In an ordinary season good broadcast sowing is equally good as drilling; but in a dry season the drill is the best."

MICHIGAN.

St. Joseph county.—"The grain-drill has not been used extensively in this county, but when used properly the results show a decided advantage in that mode of planting."

Wayne county.—"The drilled wheat suffered equally with the broadcast, save where drilled north and south, when, in some places, where the ruts were deep, it was sheltered from the sweeping west wind. Drilling has some advantages and also some disadvantages. Its advantages are, it is less liable to upheaval, and on loose soils to have the earth blown or washed away from its roots. Its disadvantages are, that in wet seasons it is liable to be submerged in the ruts on undrained soils. When the ground is frozen, and a partial thaw occurs, the ruts are filled with water, and frequently freeze over immediately on the cessation of the thaw, and the wheat is frequently smothered. As far as my experience goes, drilling is, on some soils and in certain seasons, an advantage; in others, an injury. I found also the sweeping wind, rather than the intensity of the frost, has destroyed the wheat. I find northeastern exposures, where it must have been equally cold with other parts of the field, escaped by having the wind arrested by the fences; that sowed by the drill, being in trenches, suffered but little. I sowed last fall four hundred acres, both with drill and hand. The hand-sowing is not worth cutting, whilst the drilled is fair. The same is the case as far as my observation extends."

Simpson county.—"Wheat that was sown on land cultivated last year in tobacco is in more than an average growing condition. That upon land cultivated in Indian corn less than an average."

MARYLAND.

Cecil county.—"It is difficult to compare wheat sown by drill and broadcast, as nearly all is sown wholly by the one or the other method. Mine was sown broadcast, and it was considerably injured. A neighbor sowed by drill, and his is also injured. After several experiments, he is rather unfavorable to drilling. He thinks too much open space is left unoccupied between the drills. A part of his ground he drilled both ways, putting on, as he thinks, an equal quantity of seed, or nearly so, in both portions. That drilled both ways has much the best appearance. My own opinion is, that drilled wheat is less injured than broadcast. A few years ago a neighbor, an Englishman, ribbed a part of his ground in ploughing the second time with a right-hand plough, running each succeeding furrow at the right-hand of the preceding one. He then broadcasted the whole and harrowed. That on the ribbed portion came up as if drilled only a little wider a-part, and was by far the best when harvested. I tried the same method once, and drilled alongside of it. I could see no very material difference in the yield."

Carroll county.—"The early-sown wheat is very good, but the late-sown is below the average. When will the farmers learn wisdom?"

NEW JERSEY.

"The reports from this State, and others in the east, show that the winter was favorable, hence no test could be well made of the relative merits of drill and broadcast sowing. In one county of this State, where much wet soil prevails, the broadcast was thought to be injured one-fourth, and the drilled uninjured; and I also find that new land has escaped when equally exposed. Can you give us the philosophy of this?"

MISSOURI.

Crawford county.—"There has been hardly the usual amount of fall wheat sown in this section on account of the drought last fall, which lasted till October 1. Having been sowed late, and got a poor start, a large amount has been frozen out, which will cause our crop in this section to be poor. Spring wheat is not sown here yet; I am satisfied it would do well."

St. Louis county.—"There is unfortunately far too little drilling in of wheat in this neighborhood, so but little can be said by way of comparison, but it is all in favor of the use of the drill."

KENTUCKY.

Mercer county.—"The past winter has demonstrated to me beyond a doubt the advantage of the drilled over the broadcast sowing of wheat. Owing to the system of labor in Kentucky, and the inability of the negro generally to handle machinery, but little of it has been used until within the last few years, in either sowing or harvesting grain. But from my observation in other States of the present growing crop of wheat, the difference in the mode of sowing is marked, and altogether favorable to the drill. Also, I am satisfied that early sowing and deep ploughing are the best, as attested by the present growing crop."

Garrard county.—"With regard to the value of the drill over broadcast sowing, I will remark that the drill is an innovation on the "institution," and of course very cautiously introduced; requiring more intelligence to work them than brute force, therefore not extensively used. But I think the difference fully as great as I have put it. In that sown broadcast, I think the yield will be less than a third of a crop, while that drilled will be very nearly a full crop—all taken together, a little over half a crop."

Oldham county.—"I have sown with the drill several years and have never had a failure, while broadcast this year nearly all froze out in February and March, or, more properly speaking, froze in the ground. The land was very dry in February, when the extreme cold weather came, which froze the wheat to death, of most of the broadcast sowing, leaving the roots of the wheat in the ground, but entirely dry.

PENNSYLVANIA.

Armstrong county.—"Winter wheat not half a crop; the drilled is much the best—has stood the freeze much better than the broadcast."

Lehigh county.—"Since 1850 the drill has been in general use in this county. At present two-thirds of the farmers use it, having found it a safeguard against freezing out, and a saving of seed."

Westmoreland county.—"The past winter has, I think, thoroughly tested the question whether drilling is superior to broadcast sowing for fall grain. In this county all have suffered equally. On my own farm I drilled about the half of a ten-acre lot, and sowed broadcast the remainder. At the present time I can see no difference, each portion being badly injured by the severe weather of the past winter. But in ordinary seasons drilling may be advantageous; still I think it is an open question, to be decided, not so much by the mode of sowing, as by the previous preparation of the soil."

Montgomery county.—"We have had a very favorable and wet spring. Wheat, though frozen out considerably, looks well; that sown by the drill was not much injured, but the sown broadcast was, at least, $\frac{3}{10}$ frozen out."

NEW YORK.

Chemung county.—"The present winter has levelled all distinctions in effect of drill and broadcast sowing. There is no difference in a field of mine, one-half drilled and one-half broadcast. The wheat was not thrown out, but *dried* to death. Some fields look better in sheltered situations as a wood or hill on the northwest side, also by or near fences."

Chautauqua county.—"Wheat that was drilled in last fall looks much better now than that sown broadcast. Drilled wheat stands freezing and heaving out much better than broadcast sowing."

Ontario county.—"As we have got through harvest, I will give you the information you ask relative to drilled and broadcast-sown wheat. We had sixteen acres of wheat drilled, which is estimated at thirty bushels per acre, whilst the next field sown broadcast is estimated at but ten bushels per acre. Both fields were cultivated in the best manner, are tile-drained, and were well manured. We drill *two* bushels of seed per acre, and sow *three* broadcast. So you will perceive that there is a great saving of seed by drilling. It also, by leaving the ground in ridges, protects the plant from the cold winter winds, and in the spring, as the earth thaws out, it crumbles and falls around the roots. Hence the roots are not injured by alternate thawing and freezing, as are those of the broadcast sowing."

COMMENTS.

1. The most prominent thing that strikes the reader of these extracts is their almost unanimous testimony for the superior excellence of drill sowing. Even where broadcast sowing is regarded as equal if the same care was observed in the preparation of the soil, yet, if it would in all such cases be equal to the drilled, there still remains the fact that broadcast sowing leads to insufficient preparation, and drill sowing to its observance. Add to this reason the fact stated by the last correspondent, that broadcast sowing requires a third more seed, and it must be conceded that this mode should be entirely abandoned. But

other and stronger reasons for the use of the drill will be given in their proper place.

2. Several correspondents refer to the fact that the freezing of last winter of the wheat roots was not of the usual character generally, the freezing *out* as it is called, but was the freezing *in*, that is, the roots were destroyed whilst yet *in* the ground, and had not been first heaved out. It is proper, therefore, that these differences should be clearly understood, so that the relative advantages of drilled and broadcast sowing may be more certainly seen.

Freezing *out* is caused by the ground being first saturated or soaked with water and then frozen deeply. When the water is changed to ice it expands, and with this enlargement the soil is heaved up. If the soil be examined when in this state, it will be found full of ice in small divisions, giving it the appearance of honey-comb. If this ice is suddenly thawed, and the water and the ground sink down together, no injury is done to the roots, unless the cold is very intense. But if, as is often the case, the thawing is gradual during the day, and followed by cold, freezing nights, then the injury is great, and is occasioned in this manner: as the ice is thawed on the top, the water runs down into low places, and is evaporated quickly, for the cool northwest or western winds are so very dry, and so highly and positively electrified, that their capacity for absorbing moisture is much greater than that of the warm winds of summer. Every housewife, when hanging out the washed clothes to freeze dry, gives evidence of this fact. Soon the top soil is dried, it sinks down as the ice leaves it, into a dry and loose condition. But the roots of the wheat cannot sink down with them, because their lower parts are held fast by the ice which remains about them unthawed. Thus gradually they are bared, and whilst so the night's freezing kills them. A few such upheavals and freezing destroy a large portion of the crop. Now, it is against this destruction that drilling is especially advantageous, for reasons that will be stated presently.

Freezing *in* results from the extreme intensity only of the cold. Beyond a certain degree of cold, winter wheat is as easily killed by it as oats, and spring wheat is at a lesser degree. Hence the necessity, in high latitudes, of the protection of the snow. Roots that are weak, from not having time to become strong, from late sowing, or from the soil being so poor that it does not afford them sufficient nutriment, have not that vitality which older or better grown roots have, and are therefore more easily killed. A correspondent asks why wheat sown on *new* soil stands the winter better? Because, being a rich soil, it has grown a more vigorous root, and also because new ground, being more porous, allows the water to pass through it more readily, so that freezing does not upheave it so much.

These facts explain several other things seen in the experience of the past winter. They show why the *late*-sown wheat was killed, although drilled in, and why the field sown broadcast in August produced so good a crop. Hence is seen, too, that to determine the relative advantages of drill and broadcast sowing, we should know the nature and condition of the soil, and the time of sowing; for whatever the excellencies of the drill may be, it cannot take the place of manures, or deep ploughing, or a thoroughly pulverized soil, or timely sowing. The field of 30 acres, referred to by our correspondent from Marion county, Ohio, was destroyed because the soil was not sufficiently rich to grow a root having a vitality sufficient to endure the intense cold of last winter, made more intense by the large quantities of water which were held by the tenacious character of the soil. If to these unfavorable conditions *late* sowing had to be added, who can rationally expect that the drill, whatever its excellencies, could overcome the combined power of such evils?

3. And here the conviction must force itself upon the mind of every reflecting reader how much American agriculture needs the aid of well-conducted, closely-observed, and long-continued experiments. Partially observed results

so often lead to erroneous conclusions that no satisfactory and certain progress can be made by their aid. Hence the fact that but few things connected with our agriculture have been determined. Most of them remain now, as they were a quarter of a century ago, unsettled questions, because results have been so imperfectly seen. But even by them some questions have been settled, though obscurely, and among these is the general conviction of the utility of drill-sowing, as is manifest from the above extracts of the correspondence of the Department.

Experiments should be made in every latitude, and hence this Department cannot make them. But in the establishment of the Industrial Colleges, under the donation of Congress, the future of our agriculture will not labor under the disadvantages of the past and present; but as the soil becomes more worn by our vast production, there will be found the means of determining the agencies of every result, and these, once clearly seen, can be controlled by an enlightened agricultural art.

4. In the absence of such experiments we must rely on general results, and not on individual cases, which are determined by unobserved incidents, and by inherent differences of two or more modes of cultivation. Thus as to drill and broadcast sowing, we must learn their peculiar differences, so that we may determine the results of each as modified by season, time, soil, manure, depth and number of ploughings, and the pulverization of the soil. The purposes of this article would be uncompleted if a brief examination of their peculiar differences was not made.

Drilling has two general objects in view—saving of seed, and such disposal of it as will best tend to the production of a perfect plant. Of the first, nothing more need be said than has already been. Of the second, everything is attained if the root is well grown in the fall, for such root resists freezing *out*; it has acquired sufficient vital power to resist freezing *in*; it pushes forward the spring growth of the plant to early maturity, thus avoiding rust, and overcoming the attacks of the fly, and it insures a large crop by sufficient stooling, and by better filling the grain. Essential to such results are, of course, a rich soil, properly prepared, and timely sowing; but these do not belong to the sowing, and therefore cannot now be properly considered, for its office simply is to place the seed in the ground. It has in view four things: to place it at the proper depth; to distribute it equally, so as to allow equal space to each plant; to give it protection during winter; and to allow spring cultivation. These will be briefly considered in the order stated.

1. *Proper depth of planting.*—Every observing farmer will admit that ordinarily the fall growth of wheat determines the success of the crop. Now, in a climate like that of the United States, where the dry Indian summer prevails from the first of October to the middle and end of November, it is of the last importance to place the seed at that depth where the roots will be shielded from the surface droughts, and can reach the uprising subsoil moisture. Drill-sowing places the seed about three inches below the surface of the drill furrow. As the roots grow, they pass beneath the drill ridges, thus increasing this depth from the surface. In very *dry seasons* this is of much advantage, but not material in moist ones. And to this fact, probably, we owe the different results stated by the correspondent from Jersey county, Illinois, from harrowing and rolling after the wheat was drilled in.

Broadcast sowing, especially if harrowed and not ploughed in, but barely covers a large portion of the seed. In this condition it is subjected to the influence of the Indian summer droughts, and forced to seek moisture in the dews and slight showers of this season. To learn what effects on the fall growth of the root these different depths of planting have, we need but examine the state of the roots in the spring. Having done this carefully, after a winter of very injurious freezing *out*, we can confidently declare what that state is.

The roots of the drilled wheat as they came from the stool of the plant were double the number of those from that sown broadcast. The latter were only half the length of the former; either without branches, or with very weak ones. But the drilled root branched once, often twice, strongly. Altogether the mass of roots from the drilled wheat was, in bulk and weight, more than double those from broadcast sowing.

The roots of the drilled wheat also curved downwards, and this clearly showed the source of their sap to be the uprising sub-soil moisture, for the roots of plants always turn in the direction from which their sap is derived. The roots of the wheat sown broadcast were in an almost horizontal direction, and this direction as clearly indicates their dependence on the surface moisture derived from dews and slight showers. As these in a dry fall are inadequate to the wants of the plant, its growth is checked, and winter finds it unable to endure the cold. The surface roots are soon laid bare, many entirely so, some still have a feeble hold by the ends of one or more of the roots, and there is scarcely a plant but can be raised up from the place of its growth, whilst the drilled-in wheat presents a plant firmly fixed and immovable.

2. To have an equal growth each plant should have an equal space in the soil. Drilling gives this, but in broadcast sowing some places receive too much seed, others too little. It collects in furrows and holes, leaving ridges and all the higher parts nearly naked. Crowded roots obtaining but a weak growth, possess so little vitality that an intense cold kills them *in* the ground, and the first thawing and freezing brings most of them on the surface of the soil to perish.

3. Incidental to drill sowing is the fact that the ridges made by the drill teeth lie considerably above the crown of the plant. These settle down, from the winter freezing and rains, around the plant, covering that part of the roots nearest the surface. This protection is not found in broadcast sowing.

4. Although in the United States spring cultivation of wheat is unpracticed, except when harrowed in a few cases, yet, as in England, so it will be here, when labor is more abundant; it will be found highly advantageous to run a cultivator between the drilled rows, to loosen the soil, that weeds may be destroyed, cracks closed, and such pulverization and depth of soil had as will enable the roots to more rapidly enlarge. Such cultivation could not be given to wheat plants sown broadcast.

Thus we have these four things from which the superiority of the drill may be readily inferred. And it is the first three of these which have led to the general expression in behalf of drill sowing, which we find in the foregoing extracts from the letters of correspondents.

It remains only to add, that in portions of the United States, as in the eastern States, where the fields of wheat are small, and, in consequence, each farmer does not wish to incur the expense of a drill, it would be found advantageous for farmers either to club together in the purchase of one, or else to hire the drilling of their fields, as in many places in the west it is done, in past years at from 40 to 50 cents per acre. The seed saved will almost pay for the drilling.

STATE OF THE FOREIGN GRAIN MARKETS AND CROPS.

The state of the foreign grain markets, as influenced by the foreign crops, is, at this time of the year, when the foreign harvests are just completed, a matter of much interest to our farmers and dealers in produce. We therefore take from leading English papers the following statements of the harvests, as they progressed during the month of September in Great Britain.

The Mark Lane Express of September 5 says :

“Potatoes here have been much lessened in quantity, the bulk this year being small, though generally healthy. Prices yet rule high compared with wheat,

and are likely to do so, unless heavy shipments come from the continent. Northern Europe has been somewhat in jeopardy respecting the cereal crops, rough weather having prevailed, and some of the wheat has sprouted. Had it not been for the dull reports from England and France, the markets would, in all probability, have risen. The same untoward weather has been reported in Holland and Belgium, which has kept prices from declining, though most of the cereals there have been secured. In France the markets seem to be in a temporary lull, growers being indifferent about sales, and buyers not caring to operate, except in retail."

The same paper, of September 12, remarks of Scotland and the neighboring English counties: "We hear that heavy losses in the field have occurred from high winds. As respects the wheat trade, it has rather flagged, many samples brought to market having wanted condition. With the price of meat ruling high from the long drought, and consequent deficiency of forage, and a prospect of a further rise as Christmas approaches, it is not to be expected that farmers, with only an average crop of wheat at best, will be very anxious to clear out on unfavorable terms. With about double the yield in malting barley, and prices in many instances equal, their attention is much more likely to be drawn to the paying article, and more reserve be put on human food till prices become remunerating. The weather in Europe has been unsettled, but prices have undergone but little change."

The same paper, of September 19, says: "The late high winds, it appears, have proved very destructive in the northern counties and Scotland, where the grain was not harvested, almost reducing the produce to one-half. This, though a severe local calamity, cannot, however, be considered to seriously affect the general yield, which, for wheat, may probably be taken below the average. Of this, enough is now weekly brought to market to make a very quiet trade, and some decline, say about 1 shilling (24 cents) per quarter (8 bushels) has to be noted. Advices from the continent show little change in the prices of grain, but the tendency is generally downwards. In France markets have been quiet, neither buyers nor sellers caring to operate freely. Belgium and Holland have been dull, as well as the interior of Germany, the weather on the whole having been more favorable for the completion of harvest."

The same paper, of September 26, alluding to the drought that had prevailed in Great Britain, says: "The heavy rains of the past week will about remove the last vestiges of the drought, and, as a mild temperature has generally ruled, the effects on the grass lands have been surprising, as a new growth has been imparted to the esculents, which were stunted and tough. The wet has, however, been unfavorable to the completion of the harvest in the north, and in Prussia some amount of cereals has yet to be gathered, with very little prospect of serviceable condition. Importations having still poured in upon the Kingdom on a scale which could only be justified by the utter failure of the crop, and the necessities of the farmers having forced them to send liberal supplies to market, we have generally to note an extreme dulness in the sale of wheat, with a further decline of 1 shilling (24 cents) to 2 shillings (48 cents) per quarter, (8 bushels.) The heavy imports must necessarily go to the granary, the high rate of discount being still against any speculative movement, and in such a state of things there seems to be very little chance of much improvement till Christmas is past, and we can the better estimate not only our own produce, but that of foreign countries. It would indeed seem that our own instances of blight and deficiency have been exaggerated, and that the American advices respecting the shortness of the yield in the federal States have been still more wanting in accuracy, so that the prospect of remunerative prices has become more remote. In France, indeed, some amendment is noted, and as a little while since there was a possibility that French importations would pay in this country, that idea must be given up; but almost everywhere else a sort of

paralysis has come over the grain trade, from which there is, apparently, no immediate relief."

This view of the state of the crops of Great Britain during the month of September is sustained by the London Economist, and in its commercial epitome of September 24 it remarks :

"The trade at Mark Lane, to-day, for all descriptions of produce, both English and foreign, was very dull. Even including a few samples of home-grown wheat, of fine quality, which changed hands at Monday's decline in prices, the amount of business transacted was unimportant, and the bulk of the supplies brought forward was left unsold at the close of the business. As regards barley and oats, the tendency of prices was strongly in favor of buyers, and beans could only be disposed of at reduced quotations. At Liverpool, this morning, the grain trade was very dull, and prices declined. Wheat gave way 2*d.* (4 cts.) per cental; flour, 6*d.* (12 cts.) per barrel; and maize 6*d.* per quarter. At Wakefield, a reduction of 1 shilling (24 cts.) per quarter (480 lbs.) took place both in wheat and barley."

There are two causes which have a tendency to produce a temporary depression—the high rate of bank interest, being the unprecedented rate of 9 per cent., and the necessity of renters paying their money rents due at Michaelmas, (29th September.) How far wheat on the continent is injured by unfavorable weather, remains to be seen; but if the quality is impaired, the fine condition and quality of our own will give it preference in the English markets. It is pretty certain that the English harvest is below an average crop, and that it has sustained some injury from wet weather.

It is, however, important to observe the opinion expressed, that France will not export wheat and flour to Great Britain. By reference to the table of imports of wheat, &c., to that country, in this report, it will be seen that France, during the first eight months of this year, sent 161,901,600 pounds of flour to Great Britain, whilst the United States sent but 149,779,056 pounds. France also exported to England about two-thirds as much wheat as this country did. The condition of the wheat crop in France will insure to our own wheat and flour an increased demand.

THE GRASS, OAT AND ROOT CROPS OF ENGLAND.

The foregoing remarks on the state of the English and continental crops have especial reference to the wheat crop. But the crops now to be considered are those which affect the feed of farm stock directly, and indirectly that of the human family. The tendency of the farming of Great Britain, for several years, has been to the increase of animals for food. Hence any condition of the crops that lessens the number of these in the market must increase the consumption of the cereals.

There is but one opinion expressed in the English papers of the crops above named—all are far below an average, and some of them, as the hay and turnip crops, so short that English agricultural papers are now discussing very earnestly the best modes of supplying the deficiencies during the coming winter. For the purpose of presenting the shortness of these crops, we take from the Gardeners' Chronicle the following extracts.

In that paper of September 10, we have this general account :

"With the exception of the Lincoln, Cambridge, and York fens, which have produced bulky crops, the oat crop in England is sadly deficient. In Scotland, too, the oat crop is thin on the ground, short in straw, and altogether deficient.

"The bean crop is very irregular; on deep loams it is an average, but on the whole this crop is deficient.

"Potatoes generally are of a fine quality; tubers small, but plentiful, and the produce light.

"The turnip crop in the southern, eastern, and in most of the midland counties of England, is a failure. In the fine root-producing counties of Norfolk, Hants, and Berkshire, a few fields of average quality may be witnessed, but these are exceptional, and the greater portion of the area allotted to turnips and mangold is a blank.

"Pastures in the south have suffered severely from the drought, and up to the middle of August presented the most arid appearance. Stock not supported with extraneous food subsisted chiefly on hedgerow leaves and the branches of trees, and it is surprising how they maintained their condition.

"Taking the crops as a whole, wheat is an average, barley fully average, oats one-third deficient, beans under average, potatoes short, roots in the south not one-fourth of a crop; in the north a full average.

"With a light crop of hay, roots a failure, a short yield of straw and barren pastures, it is a matter for serious apprehension on the part of farmers in the south respecting their short supply of food for a full supply of store and fattening stock."

In its paper of September 24, this paper has the following editorial comment on the crops :

"The certainty of at least an ordinary crop of wheat and barley is perhaps sufficient to justify Mr. Disraeli's account at Aylesbury last Wednesday of the cereal harvest generally; but whatever may be thought of his opinion of our wheat and barley crops, there cannot be a doubt of the mistake he made in reference to the almost equally important subject of cattle food. The root crops, which, according to him, are 'not so bad after all,' are simply the greatest failure that the existing generation of farmers has known. All over southern and midland England the turnip crop is a failure, and the wurzels, everywhere extremely patchy, are like the produce of our grass fields, only half a crop.

"The maintenance of our breeding and our young stock in healthy condition, and the maintenance of progress in our fattening stock, is the great agricultural difficulty of the coming winter."

The correspondents of this paper thus refer to the condition of these crops in their respective localities :

SURREY-COUNTY.—"The failure in the root crop far surpasses anything I have ever witnessed. There seems to be literally nothing in the shape of Swedes or turnips in prospect for the coming winter. Since the recent rains the few roots that remain are putting on a growing appearance, and look like spots in a desert, the gaps are so numerous and extensive all around.

"The usual winter stock of sheep I keep, with the same feeding, would eat everything clean up by the end of November, such is the extent of the failure."

GLOUCESTER COUNTY.—"Your inquiry for information on plans for eking out the supply of food for sheep and cattle, which prevails in the southern counties, is not so easily answered, and I fear comes somewhat too late. Linseed cake of prime quality at the present price, about 12 pounds per ton, (60 dollars per 2,240 lbs.,) is an extravagant food. Bran, at 5 guineas (25 dollars) a ton, is far more economical. Lentils and Indian corn, both at present to be bought at from 32 shillings to 34 shillings per quarter, are cheap foods, (\$7 68 to \$8 16 per 8 bushels.) Wheat again is a cheap article to mix with Indian corn."

SOMERSET COUNTY.—"Here, too, the failure of the turnip crop is universal, and the remedy proposed is to feed no beasts in the stalls this winter. This portends high prices for meat next spring and summer; and unless the price of oats and Indian corn remains moderate, which can hardly be expected, there will be hard times for the young stock also."

The same paper of October 1, says :

"A large portion of our paper is this week occupied with reports of the past harvest, and with speculations as to the coming winter. In the multitude of

counsellors there is wisdom, and our readers, therefore, will not object to the advice of our many correspondents, notwithstanding it is somewhat monotonous. The unanimity of their recommendations proves them to be all the more trustworthy. The abundance of excellent straw for provender, and the power of making it palatable, and of adding to its feeding power by the addition of meal, linseed, carob pods, salt, and even sugar—this is what every one declares to be our great resource in the difficulty of an almost lost crop of turnips, and of a half crop of hay."

"Wheat," says this paper, quoting from the letter of a correspondent, "could be used with advantage; it would mix well with Indian meal, and tend to make it mellow; it would also make flesh fast. The average price, as you know, is only 40 shillings per quarter, or not quite 9 pounds per ton, (45 dols. per 2,240 pounds.) Using wheat for this purpose might also have a tendency to advance the price; if so, it would benefit the farmer in two ways."

A correspondent writes as follows: "Root crops are generally bad, especially the Swedes; in many cases a total failure. There will be a great loss in lamb hogs (weaned lambs) this winter. Dry food must be given at once; where that is not done they will certainly die."

Another adds: "Second crops, after early potatoes, such as planted mangels, common turnips, &c., are generally a failure; and purchased food, such as Indian corn, linseed cake, cotton cake, linseed, bran, &c., must be resorted to."

Another thus writes: "If wheat continues near its present price a considerable quantity no doubt will be used for feed in the room of cake, &c., and may perhaps have some effect on its price in the ensuing spring."

A fourth correspondent thus advises: "On the whole I should say that there will not be more than a half supply. The hay crop is deficient by a third at least. The grass was all dried up in the pastures, and the autumn growth which our graziers rely upon for the winter will come to nothing, for it is consumed as fast as it grows. There will be no stock of it to carry on, and stock-masters will have to draw on their fodder sooner than usual. Of aftermath there is none. A very large number of beasts must be kept over the winter, which, under ordinary circumstances, should have been sold out at this time. To meet these wants we shall have recourse to the use of Indian corn, or, at the present low prices, of inferior wheat, oats, peas, and beans, all of which are now cheaper than the various descriptions of cake."

It is not necessary to make further quotations from English papers to show the character of the crops there used for stock-feeding. They have so greatly failed that the inferior wheats will be used as stock food; and as our own wheat is unusually excellent, and much of that grown in Europe very inferior, it is clear enough that American wheat will find better sales in the markets of Great Britain than they are now doing, and that prices will improve more next spring and summer than during the coming winter.

Again, the facts and opinions presented in these extracts indicate a favorable demand from Great Britain for our Indian corn. It, therefore, is of much interest to know our capabilities of supplying whatever demand may be made upon our present corn crop. To present some idea of that capability, it becomes necessary to turn to that crop to ascertain what its amount is and what home demand will be made upon it.

THE CORN CROP OF THE UNITED STATES FOR 1864.

By turning to the tables of the crops as estimated by this Department, in this report, it will be seen that the corn crop for the past three years is as follows: 1862, 586,226,305 bushels; 1863, 451,967,959; 1864, 530,581,903. That is, the crop of 1864 is less than that of 1862 by 55,644,902 bushels, and greater than that of 1863 by 78,613,444 bushels. The crop of 1862 was much

the largest ever grown in the United States. Not only this, but the home demand upon it was much the greater of any other year. Without referring to the demands of the war, we notice those only arising from the great distillation of 1862, 1863, and the great amount of cattle and hogs fattened upon it.

The pork packed in the west, as far as reported, shows that in 1862-'63 the number of hogs packed was 4,392,085; and in 1863-'64, 3,389,427, showing a decrease of 1,002,658. The return of the fattening hogs, as shown in this report, from the western States, presents a decrease of this year from the last of about twenty-eight per cent., or 949,038. Together, the decrease since 1862 is 1,951,696.

Allowing fifteen bushels of corn as necessary to the fattening of a hog, this number would require 29,275,440 bushels. So that there will be a lessened demand to this amount on the crop of 1864, that there was on the crop of 1862. We have no data by which to determine the additional bushels consumed in distillation in 1862-'63 over what will be the probable amount in 1864-'65, but the present large supplies of whiskey, and its decreased consumption from the high tax, will decrease largely the distillation in 1865. Nor do we know the difference between what was necessary to fatten cattle in 1862-'63, and that which will be required in 1864-'65. But altogether the demand for these objects on the crop of 1864 cannot be less on the crop of 1862 than 20,000,000 bushels. In round numbers we may safely place the lessened home demand for corn for these three purposes at 50,000,000 bushels. Then the greatly lessened number of horses, stock hogs, and cattle, and the greater economy that will be observed in feeding, should not be overlooked. We cannot err much in supposing that the amount of corn for exportation of the crop of 1864 will be fully equal to that of the crop of 1862.

The exports of Indian corn to Great Britain have been as follows: 1861, 24,722,816 bushels; 1862, 21,830,328; 1863, 23,774,976; and in eight months of 1864, 4,564,832. Its price in New York has been as follows: 1861, 72 cts. per bushel; 1862, 64 cts.; 1863, 82 cts.; in January, 1864, \$1 30; and in July, 1864, \$1 68. At the last date, it was selling in England at 85 cts. per bushel, gold value.

ENGLISH PRICES.

The general prices in the English markets were as follows at the close of September: Flour, for American, from \$4 56 to \$5 28 per barrel; wheat, from \$1 13 to \$1 29 per bushel of 60 pounds; corn, 78 cts. to 89 cts. per bushel of 56 pounds; rye, 93½ cts. per bushel; barley, 77 cts. to 96 cts. per do.; oats, 42½ cts. per bushel of 33 pounds; meadow hay, from 2 cts. to 2¾ cts. per pound, or from \$40 to \$55 per ton of 2,000 pounds; clover hay, from 2½ cts. to 3½ cts. per pound; potatoes, from \$14 40 to \$15 60 per ton of 2,240 pounds, or from 39 cts. to 42 cts. per bushel of 60 pounds.

These prices may seem to be small compared with present American prices, but it must be remembered that they are based on gold values. To be compared to those of our currency value they should be more than doubled.

THE CROPS IN THE PACIFIC STATES AND TERRITORIES.

This Department has endeavored to place itself in regular communication with the States and Territories of the Pacific coast and Rocky mountains. But until railroad connexion is formed with California, it will be impossible to do this so as to report their agricultural condition, as is done that of the nearer States. But with such mail facilities as now had, matters of much interest may be published in our reports, irregularly, of all of them; and hence the continued efforts of this Department to extend its correspondence in these States and Territories. In this article we design to give a general notice of their seasons and crops.

CALIFORNIA.

In the Bi-monthly Report for March and April a brief statement was made relative to the drought which had prevailed in California during the last winter, and its effects on the agriculture of that State. It prevented the ploughing of the soil, and, consequently, the sowing of the crops. It prevented the growth of pastures, and the farm stock was without food, and in many places without water. When that report was published, rains had commenced to fall, but they were too late for sowing the crops, and too insufficient for much good. The result was such a decreased production as is seriously felt in all branches of business. Speaking of this depression, the Mercantile Gazette of San Francisco, of August 12, says :

"There has been less produced. The producers of course have less to sell, less to pay their debts with, and less to spend. To avail themselves as much as possible of the calamities of the season, or rather, we should say, to make the most of the results of their labor, many are holding back their produce from market in the expectation of further enhancement of prices. The stock-raisers, a very important class of our rural population, have suffered immensely from the drought—in some portions of the country losing three-fourths of their herds, and the remainder totally unfit for market."

The grain crops would not be more than one-half the ordinary yield. Prices had advanced to \$3 25 to \$3 50 per hundred pounds, in gold value, for wheat and corn. Heretofore a large export trade in breadstuffs existed from California to Great Britain, China and Australia. The consequences of the drought to this trade are thus referred to in the same paper of August 2:

"We remark a decided falling off in our exports, which, for the most part, is owing to the high prices ruling for breadstuffs, occasioned by the partial failure of our wheat and barley crops the present season. For several years past we have exported largely of wheat and flour to England. That trade has now ceased entirely. We also sent her ores and tallow, &c. Not a ship has been despatched from this port to Great Britain for months. A year ago our export trade with China consisted chiefly of shipments of flour and wheat. That traffic has also ceased. A few cargoes of breadstuffs and feed grains have been sent abroad to Australia and New Zealand, the past three months, in exchange for coal, but these have been greatly restricted, owing to the high prices ruling."

Instead of exporting breadstuffs, California has become an importer of them. "We have received this week," says the same paper, of September 5, "1,000 barrels corn meal from New York, and from Oregon about 2,000-quarter sacks of flour, 2,000 bushels of wheat, and 2,000 bushels of oats, &c." Of the receipts of San Francisco from the interior parts of California, it remarks: "Our receipts of flour and grain of the present harvest year have been thus far only about one-half of those of last year. The same remark is true of vegetables, fruits, &c.; and yet the net proceeds have been fully equal to those of previous seasons."

If this Department could have had a full agricultural correspondence in all the counties of the State, and a more limited one on meteorological matters, they would have furnished a most interesting and useful record of this remarkable and destructive drought. But as it is so limited, a very partial account only of them can be now given. And so far as we can speak of it here, we are indebted to Joseph S. Wallis, of Mayfield, Santa Clara county, one of the best correspondents the department has. He thus writes, August 9:

"I have taken great pleasure in perusing your reports, and find much in them to entertain and instruct, and hope they may have a large circulation among the farmers of this State. It will be a pleasure to me to correspond with your Department, and to render any assistance to you that will enable the

department you have the honor to represent to extend its benefits to California, the laboratory of nature and the Eden of the western world.

"Our seasons being divided into the wet and dry, all our grains are sown between the middle of December and the last of March; consequently we make no distinction in our crops, as winter and spring wheat. The past winter was unprecedentedly dry, and the result has proved very disastrous to the agricultural interests of the State. The grain crops this season will not yield half the average products for the past three years. The hay crop is about fifty per cent. less than that of last year. I am now speaking of the crops throughout the State. In this county the hay crop is at least fifty per cent. more than that of last year, owing to failing grain crops having been cut for hay. In this State hay is chiefly made from the wild oats that is found on the hills and in the valleys throughout the State. None of the cultivated grasses of the older States will grow here. They are not adapted to this climate, for the dry season kills them out. Large quantities of hay are annually made in the State from the volunteer crops of wheat and barley—the latter making an excellent quality of hay, superior to oats. The time is not far distant when California must depend chiefly for her supply of hay upon the volunteer grain crops, as the oat-producing lands are annually growing less productive, they being so closely cut and grazed, that no opportunity is offered the grain to seed itself. I know of lands in this valley (Santa Clara) where, in 1850, the oats grew from five to nine feet high, and very thick, that have not, during the last two years, afforded more than four months of pasturage out of each year. The fact is, the grazing lands of the State have been overstocked the past five years, which has at length resulted in great loss to the farmer and stock-grower. Owing to the excessive drought this summer, there is in most parts of the State great scarcity of pasturage. Immense numbers of cattle have died from starvation, and many more must die before the coming winter. There will not probably be one-third the number of cattle in the State next January there were seven months since. The loss of sheep has been small, as most of them have been driven to good grazing grounds in the mountains, and some have been taken out of the State to Oregon. Large numbers of American horses and cattle have been removed to Oregon from the northern counties.

"The fruit crop this season is but little below the average. The grape crop will, I think, from all that I can learn, be about a fourth below the average. The crop of small fruits is small, such as gooseberries, raspberries, strawberries, and currants. Not only has the drought lessened the crop, but the birds, driven from the mountains for want of food, have destroyed thirty per cent. of the small fruits grown. Young orchards, where there are no means of irrigating, will suffer seriously. Most of the young trees planted last winter will die. In fact I am informed that in some localities the orchards that have been planted five to eight years are feeling the effects of the drought; many of the trees are dying. I have noticed that trees of all kinds have commenced shedding their leaves, at least six weeks earlier than usual.

"We are all hoping for early rains the coming winter; and unless 'all signs fail in dry time,' we will not hope in vain. I anticipate very early rains, at least a month earlier than usual. During the *wet* season the winds invariably blow from the *southeast*, and in the *dry* season from the *northwest*. This summer, however, has proved an exception; the wind has come chiefly from the *southwest*, and variable most of the time when not blowing from the southwest.

"A singular phenomenon occurs annually in this State about the close of the dry season, which thus far has not been accounted for by scientific men. No theory has been advanced as yet that could be supported by the principles of natural philosophy. Usually about five weeks previous to the first rain, the springs and water-courses begin to rise, and continue slowly to rise till the com-

mencement of the wet season. I have resided in the State since early in 1849, and I have never known it to fail. I am informed by old Californians, who were born in the country, that it has always been observed. It is a never-failing freak of nature. This year the water in the small streams and springs commenced rising about the first of August, at least two months earlier than any previous year since 1849. When we consider the fact that the springs and streams are rising, that the foliage has begun to fall from trees and shrubs, and that during the past four months the winds have blown from the sea inland the greater portion of the time, nearly opposite to that it usually does, I think we have good reason to look for rains as early as the middle of October; and I would not be surprised to see rain as soon as the first of October."

The "freak of nature" mentioned by our correspondent is seen here at the close of severe droughts, as well as in California, and is, we think, easy to be explained. In time of severe drought, the winds usually blow from the west and northwest. They are very dry, as will be seen presently, and also highly positively electrified. From both these conditions they absorb moisture in great quantities. Whilst they continue blowing, the waters of springs, rivulets and branches, or creeks, are decreased by this absorption. But prior to the fall of rain, the winds veer to the south and southwest, and being moist and less positively electrified, they absorb but little. Hence there is less evaporation of the springs and rivulets, and being fed by the subsoil moisture with a uniform supply, there must be an increased volume of water in them.

Our correspondent refers to a singular fact, when he states that the southwest wind brought no rain. It must appear extraordinary to one not familiar with the machinery employed by nature for the distribution of moisture to be told that there is a wind blowing over the vast expanse of the Pacific ocean into the land, where so near and lofty a range of mountains as the Nevada are ready to intercept any moisture in them, and precipitate it on the narrow coast valleys. There can, therefore, be no moisture in this wind, although it comes from the ocean. But the phenomenon is susceptible of an explanation, and having an interest to all our readers, as well as to Californians, we here give it, although requiring some space.

The machinery employed by nature for the distribution of moisture is simple, and we take the following brief statement of it from the article on California published in the *Agricultural Report* for 1862.

"On each side of the equator, when the sun is vertically above it, and reaching to about the fifteenth degree of latitude on each side of it, and moving with the sun as it travels north and south of the equator, is a belt of dry surface winds encircling the earth, and blowing with a uniform and gentle force into the equator. The wind of the north belt blows from the northeast; that of the south belt from the southeast. As these surface winds approach each other, they rise, being expanded by the intense heat of the vertical sun, and become upper currents. The surface or lower currents are called the trade-winds; the upper, the counter trade. Mr. Maury and Mr. Butler maintain that the south belt of trade-wind, when it rises, becomes the northern counter trade or upper current, and the north belt of trade-wind becomes the southern upper counter trade. These currents pass through each other in strata, which may be represented by passing the fingers of the hands between each other. But the generally received opinion is, that these surface currents strike against each other as they ascend, and turn each other back over the hemispheres from which they came. I regard the first opinion as more philosophical, because currents of air more readily stratify than repel each other, and because the southern hemisphere of the earth is chiefly water, the immense evaporations of which are more needed to water the land hemisphere of the north than to be discharged on the ocean, where they are not needed. 'Nothing has been formed without a purpose.'

"Between the points from which these opposing surface belts of wind begin to rise, there is a belt of rains also encircling the earth, and about five hundred miles wide. It is called the rainy belt, and from it pour down those torrents of rain which fall on Central America.

"As these dry surface trade-winds pass over the land and the ocean, they absorb immense quantities of moisture, and their capacity to hold it is increased by the great heat imparted to them from the rays of the vertical sun. After they have risen, and become the upper or counter trade, the north one passes, at first, in a northern direction; but on account of the diurnal rotation of the earth, it is gradually turned to the east, forming the southwest wind, so general during summer in the Atlantic States. As it passes northwards into colder atmosphere it loses its heat; the moisture, in consequence, condenses, and at about fifteen degrees north of the equator portions of the wind and moisture descend to the earth. Other portions having received the latent heat liberated from the moisture that has descended as rain, continue northwards even to the north pole. The portions of the earth receiving these rains are called the extra tropical rainy regions.

"This central rainy belt and these two belts of dry trade-winds follow the sun in its passage north of the equator to the tropic of Cancer, which is nearly to the twenty-fourth degree of latitude. As the northern edge of the dry trade-winds reaches fifteen degrees north of the latitude of the sun, when the latter is at the tropic of Cancer, this northern edge reaches to about the thirty-ninth degree of latitude, being within three degrees of the northern boundary line of California. But before the sun reaches the tropic of Cancer, and after it begins to recede from it, northern California receives the rains that fall beyond the dry trade-winds. Thus this part of the State receives more rain than the southern portion, which is longer covered by the trade-winds."

The northwest wind, therefore, is dry, because in passing from the equator to the pole it has parted with all the moisture it had absorbed, when rising into the upper regions of the atmosphere at the equator. Hence, as our correspondent says, "in the dry season the wind invariably blows from the northwest." During last winter this wind continued blowing from the same direction, instead of from the southeast, as it usually does in winter, which is the wet season. Why it did so we cannot tell, nor do we suppose that meteorology can furnish a satisfactory explanation.

But we have just seen that the wind which brings rain is the southwest wind. Why, then, has it been so dry this summer in California? Simply because the dry trade-wind belt had extended over most of California, and it must have been these dry winds turned from their usual course, by the cause which kept the northwest wind over California during winter. The true moist southwest wind descends to the earth *beyond* the dry trade-wind belt. Hence, although they came over the ocean, they had not yet absorbed the evaporations of the ocean. How far they passed over the ocean, and whether they came from the southern hemisphere or the northern, cannot be determined; but the latter, in all probability.

But why are the winds of the wet season in California from the southeast? Why are they not the southwest winds, as in this part of the Union?

East winds are mere surface winds, and caused by an approaching fall of rain and snow, or condensation. We have them here in winter. But the rain comes from the higher strata of clouds, which are moving from the southwest to northwest. Thus, in some marked rains of the past winter, during which, and for twenty-four hours before their fall, the wind blew constantly from the northeast the newspapers show that they commenced falling from four to six hours at Washington, before they commenced at Boston. They were traced at Baltimore, Philadelphia, New York, and Boston, moving directly against the northeast wind. In California, the Nevada range of mountains run, from the southeast

to the northwest, and by their height they would deflect the southwest winds from their natural direction towards the northwest, or from the southeast. Hence, the eastern winds caused by rains would naturally unite with the deflected southwest winds, and aid their deflection. The union would present the fact stated by our correspondent, "that during the wet season the winds invariably blow from the southeast."

As this machinery follows the sun, the northern edge of the dry trade-winds has been receding to the south since the 21st of June; so that most of California will soon be able to receive the rains brought by the true southwest wind, for the upper current of moist winds coming from the equator descends to the earth immediately beyond the northern edge of the dry trade-winds.

COLORADO TERRITORY.

From this Territory we have returns from the following counties: El Paso, Larimer, Boulder, Clear Creek, Conejos, Arapahoe, Huerfano, Pueblo, and Jefferson.

The climate of this Territory varies much according to the altitude of the counties. The winter was a severe one, and rendered the more unfavorable for stock, by reason of the severe drought last fall. Fruit trees in Boulder county, from Iowa and Illinois, set out last year, generally perished, but native seedlings were unhurt. At Boulder City, hay was worth \$60 per ton, and corn 10 cents per pound.

The month of February was pleasant; March, dry and windy; April, snowy, cold, and wet; May, cold and very wet; June, more favorable; and July more so than June. In this last month the grass in the mountains was more abundant than at any previous season, vegetation luxurious, and wild fruits abundant.

In regard to grain crops the returns show a rapid increase in per cent. over the crops of last year. The crops are spring wheat, barley, corn and oats. But summer crops require irrigation. In Huerfano county, which is 35 miles from the foot of the mountains, corn is the staple crop, where frost does not appear until late in October. The increase of these crops ranges from 50 to 500 per cent. according as the county has been longer or more recently settled, but the general average of increased production may be placed at from 75 to 100 per cent.

With a climate so unknown, and in altitudes so various, and so much higher than the farmers have been accustomed to in the States from which they emigrated, agriculture is yet in Colorado an experiment. But the abundant mineral wealth gives great encouragement, and with experience will come greater success. To record that experience and success is the earnest desire of the Department, and therefore it solicits an extensive correspondence from every portion of the Territory, and will be ever ready to give whatever aid it can in the development of its agricultural industry.

UTAH TERRITORY.

The counties reporting to the Department from this Territory are Utah, Weber, Washington, San Pete, Beaver, Davis, Salt Lake, and Box Elder.

In February the climate was cold and frosty; in March, cold and windy, with rain in the latter half of the month; the month of April was very dry, but in the latter half of May, fine growing rains fell. In June and July, the weather was dry and wet alternately. There were variations from this state of the weather in some counties, but nothing that demands a particular notice.

During the present season there is no portion of the Union that has made returns indicating as favorable condition of the crops as Utah. There is evidently a steady advance in its agriculture, and the indications are that this

agriculture will aid much in the development of the mineral resources of the Territory.

OREGON.

Our returns from this State are too far back in the season to speak of its harvests, and our correspondence too limited to present such a view of the peculiarities of the season as would convey even the remotest idea of what its crops may now be. From Columbia county, in the northern portion of the State, we have the following account of the winter and spring, which is interesting as showing the vicissitudes of a climate so unlike our own:

"We have had," says our correspondent, "a very open winter, snow lying on the ground but four or five days. Heavy frosts in February and March, doing much damage to our fruit crop. I have heard of very few fruit trees being killed. Our fruit crop will come far short of last year. The peach crop entirely killed. Very few grapes cultivated; the vine grows well, but the fruit does not ripen. We have had no rain since April 1, which is unusual in Oregon, especially at this time of the season (June 1,) we generally have abundance. Unless we have some rain soon, our crops will fall short at least one-half. May 6 and 20, very heavy frosts, wilting the leaves and tender shoots of the hazel, and killing the potato vines. Timothy grass does exceedingly well, our average crop being from three to four tons per acre."

In Jackson county, one of the most southern in the State, a continued drought prevailed during the months of June and July. The corn and grass crops were consequently not over a half crop.

THE CROPS OF 1864.

The first of the following tables shows the amount of and injuries to the crops of 1864, as returned to this Department by its correspondents, and stated in *tenths*.

The second exhibits the amount of the most important of these crops reduced to bushels, &c., from the first of these tables. It shows, too, the crops for the years 1862 and 1863, that a comparison may be made between them.

Table showing the amounts of and injuries to the crops of 1864, stated in tenths, compiled from the returns of correspondents.

STATES.	WHEAT.		RYE.		BARLEY.		OATS.		CORN.		TOBACCO.		BUCKWHEAT.		POTATOES.		HAY.		FLAX-SEED AND LINT.		SORGHUM.	
	Average amount of crop, compared with 1863.	Injury to grain from all causes.	Average amount of crop, compared with 1863.	Injury to grain from all causes.	Average amount of crop, compared with 1863.	Injury to grain from all causes.	Average amount of crop, compared with 1863.	Injury to grain from all causes.	Average amount of crop, compared with 1862.	Injury to grain from all causes.	Average amount of crop, compared with 1863.	Injury to leaf from all causes.	Average amount of crop, compared with 1862.	Injury to grain from all causes.	Average amount of crop, compared with 1862.	Injury to crop from all causes.	Average amount of hay, compared with 1863.	Injury to hay from all causes.	Average amount of seed, compared with 1863.	Average amount of this crop, compared with 1862.	Injury to the cane from all causes.	
Maine	9 ⁴ / ₁₀	7	7 ⁴ / ₁₀	7	7 ⁴ / ₁₀	7	7 ⁴ / ₁₀	7	7 ⁴ / ₁₀	8	12 ⁴ / ₁₀	9	7 ⁴ / ₁₀	7 ⁴ / ₁₀	9 ⁴ / ₁₀	8	9 ⁴ / ₁₀	8	11 ⁴ / ₁₀	11	11	9
N. Hampshire	11	7 ⁴ / ₁₀	10 ⁴ / ₁₀	7 ⁴ / ₁₀	9 ⁴ / ₁₀	7	10 ⁴ / ₁₀	7	8 ⁴ / ₁₀	7	14 ⁴ / ₁₀	8	9 ⁴ / ₁₀	8 ⁴ / ₁₀	10 ⁴ / ₁₀	8	9 ⁴ / ₁₀	8	12 ⁴ / ₁₀	12	11	9
Vermont	9 ⁴ / ₁₀	7	10 ⁴ / ₁₀	7	9 ⁴ / ₁₀	7	10 ⁴ / ₁₀	7	8 ⁴ / ₁₀	7	13 ⁴ / ₁₀	6	8 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	9 ⁴ / ₁₀	8	11 ⁴ / ₁₀	11	11	9
Massachusetts	10	7 ⁴ / ₁₀	10 ⁴ / ₁₀	7 ⁴ / ₁₀	9 ⁴ / ₁₀	7	10 ⁴ / ₁₀	7	8 ⁴ / ₁₀	7	13 ⁴ / ₁₀	6	8 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	9 ⁴ / ₁₀	8	11 ⁴ / ₁₀	11	11	9
Rhode Island	12	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	10 ⁴ / ₁₀	8	11	9	11	8	9	8	8	7 ⁴ / ₁₀	7 ⁴ / ₁₀	13	13	17
Connecticut	8 ⁴ / ₁₀	8	8 ⁴ / ₁₀	8	8 ⁴ / ₁₀	8	8 ⁴ / ₁₀	8	8 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	9 ⁴ / ₁₀	10	10	8
New York	8 ⁴ / ₁₀	8	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
New Jersey	8 ⁴ / ₁₀	8	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Pennsylvania	8	8	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Maryland	9	8	13 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Delaware	8 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Kentucky	7 ⁴ / ₁₀	7	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Ohio	7 ⁴ / ₁₀	7	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Michigan	11	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Indiana	11	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Illinois	10 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Missouri	11 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Wisconsin	6 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Iowa	10	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	12 ⁴ / ₁₀	8	8 ⁴ / ₁₀	7	11	7	11	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Minnesota	7 ⁴ / ₁₀	7	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Kansas	7 ⁴ / ₁₀	7	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
Nebraska Ter'y	7 ⁴ / ₁₀	7	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	11 ⁴ / ₁₀	9	8 ⁴ / ₁₀	7	12 ⁴ / ₁₀	8 ⁴ / ₁₀	9 ⁴ / ₁₀	8	8	7 ⁴ / ₁₀	8	7 ⁴ / ₁₀	13	13	17	
West Virginia	6 ⁴ / ₁₀	5	13	13	13	13	13	13	11	9 ⁴ / ₁₀	10 ⁴ / ₁₀	7 ⁴ / ₁₀	10 ⁴ / ₁₀	9 ⁴ / ₁₀	10 ⁴ / ₁₀	8 ⁴ / ₁₀	11 ⁴ / ₁₀	11 ⁴ / ₁₀	14 ⁴ / ₁₀	14 ⁴ / ₁₀	12 ⁴ / ₁₀	12 ⁴ / ₁₀

Table showing the amounts of the principal crops of 1864, in bushels, &c., as estimated from the returns of correspondents, compared with the crops of 1862 and 1863.

STATES.	WHEAT.			RYE.		
	1862.	1863.	1864.	1862.	1863.	1864.
Maine.....	350,815	215,734	167,194	184,389	165,951	128,612
New Hampshire.....	318,954	255,163	251,518	162,033	145,830	109,373
Vermont.....	502,981	452,683	497,951	130,976	130,976	140,798
Massachusetts.....	129,765	129,765	128,143	388,085	388,085	413,957
Rhode Island.....	1,413	1,413	1,413	33,911	33,911	37,302
Connecticut.....	59,901	59,901	71,881	618,762	618,762	721,889
New York.....	13,021,650	13,021,650	10,918,615	5,385,268	5,385,268	5,205,759
New Jersey.....	1,808,128	1,808,128	1,582,113	1,499,497	1,499,497	1,424,523
Pennsylvania.....	15,654,255	15,654,255	12,523,404	6,843,427	6,843,427	6,843,427
Maryland.....	6,553,480	7,208,828	6,487,946	608,901	548,011	529,744
Delaware.....	1,217,254	1,217,254	1,054,954	34,011	37,412	41,153
Kentucky.....	5,546,108	5,546,108	3,882,275	791,447	791,447	554,014
Ohio.....	30,796,032	28,742,963	20,407,503	1,079,040	863,232	704,974
Michigan.....	14,963,735	13,966,153	13,966,153	494,197	494,197	434,894
Indiana.....	20,292,160	20,292,160	22,321,376	444,695	411,343	397,632
Illinois.....	32,213,500	31,408,163	33,371,173	981,322	883,190	850,071
Missouri.....	3,170,690	2,853,621	3,281,514	393,262	219,947	237,542
Wisconsin.....	20,765,781	20,842,359	14,168,317	1,066,241	1,012,929	810,343
Iowa.....	10,541,506	12,649,807	12,649,807	111,266	123,392	119,333
Minnesota.....	2,927,749	2,634,975	2,634,975	155,323	179,791	161,974
Kansas.....	202,232	262,953	201,598	4,713	5,184	4,061
Nebraska Territory.....	150,000	180,600	126,000	2,000	2,000	1,600
Total.....	181,188,089	179,404,036	160,695,823	21,239,451	20,782,782	19,872,975

Table showing the amounts of the principal crops of 1864, &c.—Continued.

STATES.	BARLEY.			OATS.		
	1862.	1863.	1864.	1862.	1863.	1864.
Maine.....	1,002,636	1,002,636	668,424	3,738,423	3,364,581	2,102,994
New Hampshire.....	141,287	127,159	96,278	1,495,365	1,345,829	1,095,891
Vermont.....	94,102	94,102	94,102	4,389,506	3,950,556	3,611,938
Massachusetts.....	168,613	151,752	149,584	1,475,094	1,327,585	1,194,827
Rhode Island.....	51,241	46,117	41,506	253,990	203,192	182,873
Connecticut.....	20,813	20,813	18,732	1,603,936	1,764,329	2,011,334
New York.....	4,882,778	4,882,778	3,710,911	43,968,916	43,968,916	35,724,746
New Jersey.....	33,220	29,098	29,098	5,446,958	4,902,263	5,735,647
Pennsylvania.....	636,859	573,174	630,491	34,233,936	34,233,936	37,657,329
Missouri.....	21,887	19,699	26,591	4,524,912	4,072,421	5,429,894
Delaware.....	4,254	5,105	4,595	1,308,637	1,570,364	1,884,437
Kentucky.....	203,014	302,014	256,713	3,562,772	3,562,772	4,346,326
Ohio.....	1,512,525	1,399,086	1,585,630	10,930,935	12,024,028	14,428,833
Michigan.....	407,885	407,885	338,388	5,430,797	5,430,797	4,810,136
Indiana.....	345,767	311,191	339,198	5,028,755	5,531,630	6,084,793
Illinois.....	1,175,651	1,205,042	1,144,790	17,892,200	19,681,420	24,273,751
Missouri.....	171,377	171,377	162,809	2,660,653	2,128,522	2,128,522
Wisconsin.....	905,323	950,589	674,919	13,271,124	14,598,236	12,043,538
Iowa.....	544,939	599,432	584,446	7,055,583	7,761,141	9,313,369
Minnesota.....	156,412	156,412	148,592	2,934,067	2,053,848	2,259,232
Kansas.....	4,953	5,448	5,901	96,892	116,270	146,500
Nebraska Territory.....	2,486	5,446	4,630	159,954	267,939	223,284
Total.....	12,488,022	11,467,155	10,716,328	171,463,405	173,800,575	176,690,064

Table showing the amounts of the principal crops of 1864, &c.—Continued.

STATES.	CORN.			TOBACCO.		
	1862.	1863.	1864.	1862.	1863.	1864.
Maine.....	1,855,285	1,855,285	1,410,017	.....	7,000	.....
New Hampshire.....	1,668,285	1,835,113	1,334,628	.....	50,000	64,000
Vermont.....	1,585,020	1,743,522	1,585,020	.....	40,000	50,000
Massachusetts.....	2,465,215	2,465,215	2,280,324	4,041,497	5,200,000	6,760,000
Rhode Island.....	458,912	413,021	474,208	.....	1,680	1,848
Connecticut.....	2,059,835	2,059,835	2,059,835	7,550,166	7,500,166	9,900,218
New York.....	24,073,257	24,073,257	22,628,862	7,205,727	10,088,017	12,912,662
New Jersey.....	10,023,336	11,025,669	8,464,262	.....	194,330	179,755
Pennsylvania.....	30,721,821	30,721,821	28,381,685	3,976,982	5,567,774	6,124,551
Maryland.....	14,444,922	14,444,922	10,509,243	40,601,179	48,721,415	33,292,968
Delaware.....	3,892,337	3,892,337	3,892,337	12,123	15,618	14,057
Kentucky.....	48,032,725	52,835,997	42,828,706	.....	113,912,938	56,956,469
Ohio.....	71,792,253	57,433,802	68,202,641	25,528,972	28,081,869	29,017,931
Michigan.....	15,190,137	10,633,097	11,088,801	160,825	207,061	248,473
Indiana.....	92,855,454	54,602,273	74,284,363	9,057,665	10,416,314	8,767,065
Illinois.....	138,356,135	83,013,681	138,356,135	9,452,307	20,397,537	18,867,722
Missouri.....	54,679,118	43,743,295	36,635,011	28,609,948	26,340,505	13,697,063
Wisconsin.....	10,087,053	8,069,642	10,087,053	109,493	153,189	148,083
Iowa.....	49,340,393	34,538,276	55,261,240	375,502	300,402	390,522
Minnesota.....	3,983,426	2,756,898	4,647,329	48,137	43,324	34,659
Kansas.....	6,814,601	8,518,251	4,673,081	21,223	26,881	22,043
Nebraska Territory.....	1,846,785	1,292,750	1,366,622	.....	1,900	1,140
Total.....	586,226,305	451,967,959	530,581,403	136,751,746	267,267,920	197,468,229

Table showing the amounts of the principal crops of 1864, &c.—Continued.

STATES.	BUCKWHEAT.			POTATOES.		
	1862.	1863.	1864.	1862.	1863.	1864.
Maine.....	452,693	407,424	350,837	7,437,053	6,603,348	7,189,151
New Hampshire.....	98,995	98,995	87,447	4,137,704	3,310,163	3,842,154
Vermont.....	233,906	233,906	210,516	5,148,531	3,603,972	5,920,810
Massachusetts.....	123,302	123,302	110,972	3,201,901	2,881,711	3,384,878
Rhode Island.....	3,871	3,871	3,097	543,855	435,084	525,727
Connecticut.....	334,032	300,629	387,477	1,833,148	2,016,462	1,833,148
New York.....	5,976,305	5,378,675	5,677,490	33,059,235	29,753,393	29,753,312
New Jersey.....	1,052,863	947,577	921,256	4,693,151	4,693,151	3,989,179
Pennsylvania.....	6,686,431	5,794,907	7,577,955	14,609,335	14,609,335	12,661,424
Maryland.....	242,672	218,405	189,285	1,517,134	1,213,707	1,061,994
Delaware.....	18,399	18,399	15,641	377,931	302,345	327,540
Kentucky.....	14,187	14,187	14,187	1,131,739	1,449,138	1,255,921
Ohio.....	1,181,947	827,364	1,300,141	5,128,756	4,103,005	4,615,881
Michigan.....	900,652	630,457	823,453	5,264,733	4,738,260	3,422,078
Indiana.....	367,797	183,898	272,171	4,357,271	3,485,617	2,904,847
Illinois.....	431,336	258,802	280,370	6,444,404	5,155,523	4,511,083
Missouri.....	136,719	95,703	72,461	1,493,519	1,493,519	776,630
Wisconsin.....	84,527	59,170	73,258	4,840,631	4,356,568	3,582,068
Iowa.....	276,524	155,914	276,524	3,600,686	2,880,549	2,520,481
Minnesota.....	34,596	20,758	31,714	2,703,926	2,433,534	2,163,141
Kansas.....	44,158	27,966	24,288	354,960	425,952	184,141
Nebraska Territory.....	12,329	6,146	.....	169,762	124,334	106,102
Total.....	18,708,145	15,806,455	18,700,540	113,234,644	100,158,670	96,256,888

Table showing the amounts of the principal crops of 1864, &c.—Continued.

STATES.	HAY.			STATES.	HAY.		
	1862.	1863.	1864.		1862.	1863.	1864.
Maine	1,170,859	1,170,859	1,085,705	Ohio	2,073,398	1,347,711	1,415,096
New Hampshire.....	771,289	771,289	694,161	Michigan.....	1,135,362	1,059,671	847,737
Vermont.....	985,654	985,654	850,127	Indiana.....	847,096	931,805	962,805
Massachusetts.....	908,289	908,289	760,517	Illinois.....	2,292,831	2,063,548	2,166,725
Rhode Island.....	82,725	82,725	62,044	Missouri.....	467,915	327,541	399,599
Connecticut.....	562,445	562,445	449,956	Wisconsin.....	1,067,248	1,067,248	789,765
New York.....	4,455,982	4,901,580	3,921,264	Iowa.....	848,712	678,970	814,764
New Jersey.....	529,729	423,783	436,496	Minnesota.....	366,603	256,621	249,289
Pennsylvania.....	2,245,420	1,796,336	1,796,336	Kansas.....	63,515	82,569	82,569
Maryland.....	195,244	156,195	167,909	Nebraska Territory..	28,735	22,988	18,391
Delaware.....	40,054	32,043	33,111				
Kentucky.....	118,863	106,977	112,325	Total.....	20,257,968	19,736,847	18,116,751

COMMENTS ON THE PRECEDING TABLE.

Wheat.—The wheat crop of 1864 is less than that of last year by 18,708,213 bushels. Its quality, however, is generally superior; and on this account it will meet with a better demand in the English market, for the wheats of northern Europe have not been harvested in good condition on account of wet weather. Although the crop is less than that of last year, yet the greater abundance of corn and buckwheat will lead to a lessened home consumption, so that the export demand can be met.

Rye.—This crop is less by 909,807 bushels than last year's—a difference too small to affect the market value.

Barley.—This crop is also less by 750,827 bushels, but it is too small a reduction for further notice.

Oats.—There is a favorable increase in the oat crop over last year's. It is 2,889,489 bushels, although there is a great falling off in New York. But the increase in the western States more than compensates for it.

Corn.—The long and severe drought of the past summer occasioned great anxiety for the corn crop. Whilst the rains in August came too late in some localities to materially benefit it, and in others some of the fields were too far injured to recover, yet, generally, they were in time to benefit the crop very much. Compared with last year, the crop of 1864 is 78,613,444 bushels greater, and 55,644,902 bushels less than the crop of 1862. But, as shown elsewhere in this report, it is certain that the home demand upon it will be far less than on that of 1862. There will be nearly two millions of hogs less to fatten; a greatly decreased number of cattle to fatten; less farm stock to keep over winter, and a still larger saving effected from distillation. These lessened home demands will render the ability to meet an export demand in 1865 fully equal to that of 1863.

Tobacco.—There is a large decrease in this crop. In 1863 it was 267,267,920 lbs., and this year but 197,468,229 lbs.—a difference of 69,799,691 lbs. The chief reduction in the crop of 1864 is to be found in the States of Kentucky, Missouri, and Maryland. The condition of their labor, and the unfavorable season for planting out, are the causes of this reduced production. The scarcity of labor in other States, and the fear that the internal duties would cause a decreased home consumption of the commodity, induced a lessened cultivation.

Buckwheat.—This crop has increased 2,994,085 bushels over that of 1863, and is equal to that of 1862.

Potatoes.—At one time it was feared this crop would be almost a failure, but the rains of August and September were favorable to it, especially in the north-

eastern States. The northwestern had rains in July, but the latter part of their season was unfavorable. The crop is 3,903,782 bushels less than that of 1863.

Hay.—Although this crop is 1,620,096 tons less than that of last year, yet its superior quality will fully compensate for its decrease in weight. It was harvested in the best condition.

Having no basis upon which to estimate the quantities of the following crops they cannot be reduced to numbers, but their comparative increase or decrease by *tenths* can be noticed.

Flax-seed.—In the States of New York and Minnesota there is a decrease—in the former State of one-third of a tenth, and in the latter of one and one-third tenth from the crop of 1863. But the other States show a large increase, ranging from one-tenth to four-tenths. The increase in *lint* is not so great, but is much in advance of the crop of 1863.

Sorghum.—In the States where this molasses product has been raised in considerable quantities, as in most of the western, there is no great increase above 1862, except in Illinois, where it is two and a quarter tenths. But in nearly all the eastern there is a large increase ranging from one to seven tenths. How far the frost of the 9th of October has injured this crop in the west is not yet known. But it was unusually backward by reason of the long drought; and premature ripening by frost is unfavorable to the production of molasses, either as to quantity or quality. We much fear that our farmers will again experience an unsuccessful season in this new molasses product.

Cotton.—The returns from counties in which this product is grown are not many, but, compared with 1862, they show a considerable increase, ranging from one to five tenths. In Illinois it is four-tenths, or forty per cent.

Root crops.—There is a large decrease in these in nearly all of the States except Connecticut and West Virginia. In Vermont there is a small increase, but potatoes are not embraced under this head.

Fattening hogs.—There is no column of our tables so important as the one that exhibits the number of hogs now fattening. Last year similar inquiries were made, and our estimate, from the returns to them, of the decrease in the number of fattened hogs in the principal hog-producing States of the west was stated at 806,139. The close of the packing season for *all* the western States showed the decreased number to be as follows:

	1862-'63.	1863-'64.
Packed	4, 084, 582.....	3, 291, 105
Shipped.....	307, 503.....	98, 322
	<hr/>	<hr/>
	4, 392, 085	3, 389, 427
	<hr/>	<hr/>
	3, 389, 427	
	<hr/>	
Decrease	1, 002, 658	
	<hr/>	

The following table shows the hogs packed in the western States, the tenths decrease of fattening hogs this year below that of last year as returned by correspondents, and the decrease which that will occasion in the number packed during the coming pork season :

States.	No. packed in 1863-'64.	Tenths decrease.	Estimated No. for 1864-'65.
Ohio	648, 836	$2\frac{3}{4}$	470, 406
Iowa	313, 331	$1\frac{5}{8}$	258, 499
Indiana	394, 217	3	275, 952
Illinois	1, 273, 390	3	891, 373
Kentucky	126, 019	$3\frac{8}{11}$	79, 392
Wisconsin	164, 576	$3\frac{5}{8}$	105, 331
Missouri	370, 736	3	259, 516
	3, 291, 105		2, 340, 469
	2, 340, 469		
Decrease.....	950, 636		

If the above table represented the hogs *fattened* in the respective States named, its correctness as to the decrease stated might be relied upon, but it shows not the number fattened, but the number packed in each, which is another thing. Thus, for instance, Indiana has less than a third of the number packed in Illinois, whilst it is the greatest hog-producing State in the Union. Illinois not only packs many Indiana hogs, but also largenumbers of Iowa and other States. Nevertheless, the decrease, as shown above, may be considered reliable as a general exhibit of the amount of the deficiency.

In the March and April report of this department we remarked, "The active demand and light prices for the products of pork indicate that the markets will be bare next fall." In support of this view, expressed so far back, we refer to the statement of that well-informed paper, the *Cincinnati Price Current*, which, in its issue of October 19, thus speaks of the present condition of pork markets:

"The stock of old pork and bacon now in the hands of dealers is small, and when new comes into market there will be but little of the old left. A year ago the stock was large, very large, and so were the stocks of American provisions in the English markets at that time, but they are quite small there this fall."

This state of the market, both home and foreign, considered in connexion with the scarcity of hogs, clearly points to the highest possible prices for hogs during the ensuing packing season. We may add that the great want of stock food in England, as is seen from the article in this report on English and foreign harvests, must cause very high prices next spring and summer for meats in Great Britain, and consequently an active demand there for our pork and cut meats.

But home prices will not be governed only by this scarcity here and in Great Britain, but, to a great extent, by the price of gold, which will be influenced by the success of the Union armies, by the numbers of troops in the field next winter and summer, by the extent of foreign imports, and by the quantity of paper money. Whilst all is encouraging as to the success of the Union cause, yet nothing as yet indicates the number of troops necessary to be kept in the field during the winter and summer of 1865. As to imports, they have lessened much, and will, in all probability, continue decreasing. The amount of paper money, it is presumed, will not be materially increased, for,

although the national banks have recently largely increased their circulation, yet they must necessarily be obliged to have nearly an equal amount of greenbacks on hand, with which to redeem their own paper. Victories in the field and decreased imports will be the chief causes affecting prices during 1865, through the lessened value of gold, but the gold values of the chief agricultural products exported will be advanced by the increased foreign demand.

Fattening cattle.—The decrease of these is also great, but not to the extent of hogs. A reference to the table of tenths will show it to the reader in each of the States, but, for want of necessary data, we cannot estimate the numbers. We respectfully suggest to Chicago that, as it is now the head of the pork and cattle trade, it should cause full reports to be taken of the entire shipment and packing of all the hogs and cattle of the country, as is now taken of hogs packed in the west at Cincinnati. This department would do so, but it has no power over matters which are commercial, a power which it undoubtedly should possess.

Quantity of old wheat on hand.—It will be seen that this is much below the usual amount. It is from two to four tenths, or from 20 to 40 per cent., less than it was in September, 1863. It is, on an average, 30 per cent. less in the greatest-wheat producing States. High prices have brought the new wheat early to a large amount in granaries of buyers, but old wheat may be considered scarce.

Quality of the new wheat crop.—Almost everywhere it is much superior to the crop of 1863. It was not only unusually large in the grain, but was harvested with the best of weather. In some places it has a good deal of smut. To the question of the best mode of avoiding this disease and other deteriorating matters of our wheats, attention will be given in the next report.

Weather.—The general statement of this in the table shows a highly favorable condition, especially for the recently sown fall crops. The predominance of the favorable and wet weeks gives the best assurance of abundant fall pastures, and of such growth of the wheat as will do much towards its successful resistance of the freezing *in and out* of our winters.

EXPORTS AND PRICES OF PRODUCE.

[From the Journal of Commerce.]

Table of the exports from New York of the leading agricultural products, from January 1, 1864, to October 25, compared with those during the same time in 1863, and their prices at New York on the 25th day of October.

	1864.	1863.	1864.
	From January 1 to October 25.	Same time.	Prices October 25.
Wheat flour.....barrels..	1,713,379	2,170,405	\$9 50 to \$12 00
Rye flour.....do...	2,667	5,055	\$8 75 to \$9 00
Corn-meal.....do...	94,649	122,783	\$7 25 to \$7 90
Wheat.....bushels..	11,842,820	13,664,989	\$2 15 to \$2 33
Corn.....do...	862,966	7,445,102	\$1 60
Rye.....do...	453	416,249	
Barley.....do...	150	52,439	\$1 90 to \$1 96
Oats.....do...	39,310	118,974	90c. to 92c.
Peas.....do...	175,555	86,499	
Cotton.....bales..	25,610	12,639	\$1 25
Hay.....do...	32,835	17,668	\$1 25 to \$1 50
Hops.....do...	17,739	21,562	30c. to 50c.
Leaf tobacco.....hlds..	69,264	46,700	12½c. to 35c.

Table of the exports from New York—Continued.

	1864.	1863.	1864.
	From January 1 to October 25.	Same time.	Prices October 25.
Leaf tobacco packages..	60, 358	41, 685	
Manufactured pounds..	4, 412, 417	2, 585, 864	
Petroleum gallons..	18, 377, 890		65c. to 66c.
Pork barrels..	119, 010	161, 368	\$39 50 to \$43 37½
Beef do..	32, 276	33, 818	\$8 to \$24
Beef tierces..	44, 205	35, 473	
Cut meats pounds..	87, 797, 888	170, 573, 369	17½c. to 18½c.
Butter do..	11, 724, 664	13, 143, 125	30c. to 46c.
Cheese do..	38, 557, 711	32, 100, 933	13c. to 22c.
Lard do..	49, 333, 739	107, 683, 994	20c. to 22½c.
Tallow do..	28, 084, 404	35, 241, 807	16c. to 17½c.

Table of exports of breadstuffs from the United States to Great Britain and Ireland, and to the continent of Europe.

[From Edward Bill's Grain Circular, New York.]

Exports of breadstuffs to Great Britain and Ireland from Sept. 1, 1863, to Sept. 1, 1864.

	Date.	Bbls. flour.	Bush. wheat.	Bush. corn.
New York	September 1, 1864	1, 004, 311	15, 054, 624	699, 595
New Orleans				
Philadelphia	September 1, 1864	77, 375	500, 765	5e3
Baltimore	do.	24, 287	60, 239	17, 256
Boston	do.	40, 805		
California and other ports	do.	95, 026	876, 895	
Total from September 1, 1863, to September 1, 1864		1, 241, 804	16, 492, 523	717, 434
Do. 1863. 1863.		1, 479, 413	23, 167, 190	10, 334, 356
Do. 1861. 1862.		2, 672, 515	25, 754, 709	14, 084, 168
Do. 1860. 1861.		2, 561, 661	25, 553, 370	11, 705, 034
Do. 1859. 1860.		717, 156	4, 938, 714	2, 221, 857
Do. 1858. 1859.		106, 457	439, 010	342, 013
Do. 1857. 1858.		1, 295, 430	6, 555, 643	3, 317, 802
Do. 1856. 1857.		849, 600	7, 479, 401	4, 746, 278
Do. 1855. 1856.		1, 641, 265	7, 956, 406	6, 731, 161
Do. 1854. 1855.		175, 209	324, 427	6, 679, 135
Total for 10 years		12, 740, 510	118, 661, 393	60, 879, 241

To the continent from New York and other ports.

From September 1, 1863, to September 1, 1864	100, 511	333, 819	13, 369
Do. 1862. 1863.	213, 579	2, 343, 314	68, 957
Do. 1861. 1862.	626, 672	7, 617, 472	322, 074
Do. 1860. 1861.	142, 129	3, 452, 496	101, 145
Do. 1859. 1860.	49, 243	178, 031	19, 358
Do. 1858. 1859.	51, 388	57, 845	25, 519
Do. 1857. 1858.	303, 100	390, 428	16, 848
Do. 1856. 1857.	483, 344	2, 875, 653	543, 590
Do. 1855. 1856.	748, 408	2, 610, 079	282, 083
Do. 1854. 1855.	7, 763	4, 972	308, 426
Total for 10 years	2, 726, 137	19, 864, 109	1, 701, 371

Table showing the total acreage of the following crops in Ireland from 1860 to 1864, inclusive.

Crops.	1860.	1861.	1862.	1863.	1864.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Wheat	466,415	401,243	356,321	260,311	279,863
Oats	1,966,304	1,999,160	1,977,528	1,953,883	1,809,918
Barley	181,099	193,955	192,302	171,592	172,662
Bere and rye.....	12,734	11,532	12,128	8,659	8,992
Beans and peas.....	12,832	14,017	15,202	15,153	16,026
Potatoes	1,172,079	1,133,504	1,018,112	1,023,414	1,039,282
Turnips	318,540	334,104	376,715	351,436	337,283
Mangel and beet root..	32,124	22,949	23,222	16,434	14,106
Cabbage	22,785	30,020	30,543	34,125	31,756
Carrots, parsnips, and other green crops...	21,633	19,559	17,713	22,505	23,190
Vetches and rape.....	40,481	31,280	30,830	29,938	29,918
Flax	128,595	147,957	150,070	214,099	301,860
Meadow and clover...	1,594,518	1,546,206	1,552,924	1,560,633	1,608,124

Imports of wheat, flour, &c., to Great Britain for eight months commencing January 1, 1864, and ending August 31, 1864.

Imported from.	Wheat, bushels, 70 lbs. each.		Imported from.	Wheat, flour, and meal, pounds.	
	1863.	1864.		1863.	1864.
Russia	4,418,336	3,959,544	Hanse Towns.....	21,369,824	25,629,712
Prussia	5,427,632	5,603,856	France.....	80,773,168	161,901,600
Denmark	613,984	1,410,448	United States	214,143,216	149,779,056
Mecklenberg.....	421,112	778,536	British America.....	65,174,480	29,817,536
Hanse Towns.....	333,752	809,840	Other countries.....	10,460,128	8,631,056
France	105,880	859,216			
Turkey, &c.....	551,696	602,368	Total.....	391,920,816	375,768,960
Egypt	3,487,880	677,272	Indian corn, bushels	16,961,984	4,564,832
United States	10,541,600	11,331,496			
British N. America..	2,247,784	1,147,824			
Other countries.....	620,096	518,128			
Total	28,769,752	27,798,528			

This table shows that Russia and Prussia still continue to supply Great Britain with large amounts of wheat. Whilst there is a great falling off in the amount received from Egypt, in consequence of that country directing its agricultural industry chiefly to cotton production, yet France has largely increased its exports of wheat and flour to Great Britain during these eight months of 1864. But recent accounts of the harvest of that nation indicate that it will be unable to maintain these exports in 1865.

The following tables of English imports of cotton, wool, and flax, will be highly interesting to all, for they exhibit the progress that is making by various nations to supply the loss to the world of American cotton.

Imports and exports of Great Britain of raw textile material from January 1, 1864, to September 1, 1864, compared with the corresponding months of 1863.

COTTON.

Imported from.	1863.	1864.
	<i>Pounds.</i>	<i>Pounds.</i>
United States.....	4, 149, 936	12, 171, 040
Bahamas and Bermudas.....	15, 198, 736	24, 500, 976
Mexico.....	7, 476, 224	18, 342, 128
Brazil.....	17, 459, 688	25, 224, 464
Turkey.....	6, 646, 844	16, 568, 381
Egypt.....	66, 697, 568	94, 463, 744
British East Indies.....	202, 218, 016	247, 886, 240
China.....	20, 986, 112	60, 252, 080
Other countries.....	14, 684, 880	22, 420, 944
Total.....	355, 519, 584	523, 040, 000
Exported.....	153, 813, 408	171, 014, 592
Consumed in Great Britain.....	201, 706, 176	352, 025, 408

WOOL.

Imported from.	1863.	1864.
	<i>Pounds.</i>	<i>Pounds.</i>
British Possessions in South Africa.....	9, 333, 524	10, 290, 191
British East Indies.....	11, 217, 343	7, 609, 763
Australia.....	60, 233, 343	78, 029, 351
Other countries.....	15, 001, 175	13, 009, 854
Europe.....	15, 002, 988	20, 538, 613
Total.....	110, 788, 373	129, 477, 802
Woollen rags torn up to be used as wool.....	13, 570, 032	15, 639, 792
Alpaca and Llama.....	1, 785, 549	1, 498, 939
Exported.....	126, 143, 954	146, 616, 533
	43, 322, 831	35, 612, 394
Amount consumed in Great Britain.....	83, 821, 123	111, 004, 229

FLAX.

Imported from.	1863.	1864.
	<i>Pounds.</i>	<i>Pounds.</i>
Russia.....	53, 587, 408	104, 628, 160
Holland.....	10, 397, 632	15, 370, 880
Belgium.....	10, 927, 504	12, 325, 040
Other countries.....	13, 104, 000	15, 989, 232
Total.....	88, 012, 064	148, 313, 312
Exported, none.....		

TABLE OF IMMIGRATION.

The following communication and accompanying table, showing the immigration at New York, have just been received:

CUSTOM-HOUSE, NEW YORK,
Collector's Office, October 24, 1864.

SIR: In further compliance with your request of the 29th June last, I transmit herewith a report of the number of emigrants arrived at this port during the months of July, August, and September, 1864.

Very respectfully, your obedient servant,

S. DRAPER, *Collector.*

ISAAC NEWTON, Esq.,

Commissioner, Department of Agriculture, Washington, D. C.

Statement showing the number of arrivals of foreign emigrants in the district and port of New York during the three months composing the quarter ending September 30, 1864.

	Male.	Female.	Total.
Arrivals in July	9, 453.....	7, 138.....	16, 591
Arrivals in August.....	12, 946.....	9, 079.....	22, 025
Arrivals in September	7, 029.....	5, 341.....	12, 370
	<hr/> 29, 428	<hr/> 21, 558	<hr/> 50, 986

DISTRICT AND PORT OF NEW YORK,

Collector's Office, September 30, 1864.

Through the politeness of Hon. Oliver Warner, Secretary of the State of Massachusetts, Hon. Simeon Draper, collector of the port of New York, W. B. Thomas, esq., and H. W. Hoffman, collectors of the ports of Philadelphia and Baltimore, we are enabled to give the number of emigrants who have arrived at those ports during the year commencing September 30, 1863, and ending September 30, 1864.

Boston.....	5,204
New York.....	177,823
Philadelphia.....	4,483
Baltimore	2,203
	<hr/> 189,713

The returns show for eleven months ending November 30, 1863..... 146,519
And for the year 1862..... 76,306

This shows that notwithstanding the effects of the terrible war in which we are engaged, and the efforts made by our enemies abroad, there has been an enormous increase in the rush of the people of the Old World to a land that promises universal liberty.

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

AUGUST.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for August, 1864, at the following places, as given by the observers named. The daily observations were made at 7 o'clock a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Perry	Washington	Wm. D. Dana	14	80	4	54	62.2	5.54
Steuben	do	J. D. Parker	14	82	31	51	64.0	3.10
Lee	Penobscot	Edwin Pitman	1	90	6, 8, 21, 31	56	67.8	1.85
West Waterville	Kennebec	B. F. Wilbur	1	93	30, 31	57	68.7	3.90
Lisbon	Androscoggin	Asa P. Moore	10	89	30	55	68.3	4.68
Cornish	York	Silas West	1	96	20	52	65.6	8.30
Cornishville	do	G. W. Guptill	1	97	31	56	70.7	8.24
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	1	90	19	51	65.3	5.75
Shelburne	do	F. Odell	15	88	19	51	68.0	.....
Barnstead	Belknap	Chas. H. Pitman	1	96	29, 31	60	70.9	4.75
Claremont	Sullivan	S. O. Mead	1	97	19	54	70.3	.....
Do	do	Arthur Chase	13	90	20	50	70.0	7.05
VERMONT.								
Lunenburg	Essex	Hiram A. Cutting	1	100	29, 31	48	.....	3.30
Craftsbury	Orleans	Jas. A. Paddock	1	89	30, 31	50	64.5	4.89
Burlington	Chittenden	Rev. McK. Petty	1	87	19	50	66.8	5.86
Middlebury	Addison	H. A. Sheldon	1	94	31	55	70.4	5.34
MASSACHUSETTS.								
Sandwich	Barnstable	N. Barrows, M. D.	1	90	19	56	71.2	7.18
Topsfield	Essex	A. M. Merriam	1	96	3, 31	59	68.9	3.50
Newbury	do	Jno. H. Caldwell	1	98	31	56	72.2	.....
New Bedford	Bristol	Samuel Rodman	9, 10, 14	84	31	56	68.9	7.62
Worcester	Worcester .....	.....	1	91	15	56	71.7	3.11
Baldwinsville	do	Rev. E. Dewhurst	1	93	31	53	65.8	5.56
Mendon	do	Jno. G. Metcalf	1	93	3, 20, 29, 31	58	71.8	3.00
Amherst	Hampshire	Prof. E. S. Snell	1	98	31	55	70.8	4.40
Westfield	Hampden	Rev. E. Davis	1	95	19, 29	56	70.1	3.19
Springfield	Berkshire	J. Weatherhead	1	102	31	50	61.3	2.54
Richmond	do	Wm. Bacon	1	98	4	56	73.6	6.88
Williamstown	do	Prof. A. Hopkins	1	96	31	52	69.3	4.96

Table showing range of thermometer, &c., for August—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	1	90	31	54	69.6	3.45
Columbia	Tolland	Wm. H. Yeomans	1	96	31	56	74.3	.....
Middletown	Middlesex	Prof. John Johnston	1	100	31	57	73.8	2.92
Colebrook	Litchfield	Charlotte Rockwell	1	95	31	55	70.3	.....
NEW YORK.								
Moriches	Suffolk	Mrs. & Miss Smith	11	98	30, 31	62	77.2	3.04
Argyle	Washington	Geo. M. Hunt	1	93	29	57	74.8	6.69
South Hartford	do	G. M. Ingalsbe	1	96	19	56	73.9	7.68
Fishkill	Dutchess	Wm. H. Denning	1	94	31	58	74.0	9.56
Garrisons	Putnam	Thomas B. Arden	1	87	31	58	72.0	8.24
Throg's Neck	Westchester	F. M. Rogers	11	94	31	62	75.9	3.72
Deaf & Dumb Inst.	New York	Prof. O. W. Morris	1	96	3, 21, 31	67	79.4	5.19
St. Xavier's College	do	Rev. Jno. M. Aubier	1	95	31	62	76.5	1.66
Flatbush	Kings	Eli T. Mack	11	95	30	61	74.7	2.82
Troy	Rensselaer	Jno. W. Heimstreet	1	97	31	59	72.7	4.97
Schenectady	Schenectady	Harmon V. Swart	1	96	31	58	72.3	.....
Gouverneur	St. Lawrence	C. H. Russell	1	93	30, 31	54	68.6	2.65
Clinton	Oneida	H. M. Paine, M. D.	1	101	31	55	73.5	7.56
South Trenton	do	Storrs Barrows						7.95
Oneida	Madison	Dr. S. Spooner	1	98	30, 31	52	71.3	12.53
Theresa	Jefferson	S. O. Gregory	1	92	31	49	69.7	3.49
Oswego	Oswego	Wm. S. Malcolm	1	90	31	50	69.9	6.66
Palermo	do	E. B. Bartlett	1	97	31	48	69.3	.....
Baldwinsville	Onondaga	John Bowman	1	88	31	51	68.3	.....
Skaneateles	do	W. M. Beauchamp	1	91	31	51	68.6	.....
Auburn	Cayuga	John B. Dill	13	94	31	56	74.9	.....
Nichols	Tioga	Robert Howell	1	99	31	50	70.9	.....
Palmyra	Wayne	Stephen Hyde	1	91	30, 31	52	71.0	.....
Geneva	Ontario	Rev. W. D. Wilson	13	92	30, 31	52	71.2	7.14
Rochester	Monroe	M. M. Mathews, M. D.	13	93	30, 31	51	71.4	5.49
Do	do	Prof. C. Dewey	1	92	31	48	70.9	5.49
Wilson	Niagara	E. S. Holmes, D. D. S.	9, 10	97	31	53	73.0	.....
Buffalo	Erie	Wm. Ives	6	90	31	46	70.3	7.57
Jamestown	Chautauqua	Rev. W. S. Roe, M. D.	11	94	31	47	69.9	9.50
NEW JERSEY.								
Newark	Essex	W. A. Whitehead	1, 11	92	31	58	74.6	3.21
Burlington	Burlington	John C. Deacon	11	94	29, 30, 31	60	74.9	2.75
Progress	do	Thomas J. Beans	11	95	30, 31	61	76.1	3.03
Mount Holly	do	M. J. Rhees, M. D.	11	92	29, 30, 31	60	76.1	.....
Haddonfield	Camden	J. S. Lippincott	1, 11	91	31	58	75.4	2.53
Greenwich	Cumberland	Clarkson Sheppard	1, 11	88	31	55	72.6	1.52
PENNSYLVANIA.								
Nazareth	Northampton	L. E. Ricksecker	11	98	31	59	76.2	.....
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	11	95	31	63	79.3	1.54
Germantown	do	Thos. Meehan	11	100	31	56	.....	.....
Fallsington	Bucks	Ebenezer Hance	11	93	29	60	75.0	1.70
Moorland	Montgomery	Anna Spencer	11	94	31	57	74.2	2.93

Table showing range of thermometer, &c., for August—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
PENNSYLVANIA—C'd.								
Silver Spring.....	Lancaster.....	H. G. Bruckhart.....	11	96	30, 31	54	71.0	.....
Berwick.....	Columbia.....	John Eggert.....	11, 13	92	30, 31	58	73.5	7.06
Harrisburg.....	Dauphin.....	John Heisely, M. D.....	11	93	30	62	77.3	4.92
Tioga.....	Tioga.....	E. T. Bentley.....	11	97	31	59	72.1	5.42
Fleming.....	Center.....	Samuel Brugger.....	10	94	31	55	72.1	6.24
Pennsville.....	Clearfield.....	Elisha Fenton.....	1, 11	93	31	52	69.8	5.69
Blairsville.....	Indiana.....	W. R. Boyers.....	16	97	23, 30	64	75.0	7.80
Connellsville.....	Fayette.....	John Taylor.....	11	92	31	47	72.5	.....
Cannonsburg.....	Washington.....	Rev. Wm. Smith, D.D.....	11	91	31	50	70.7	4.62
DELAWARE.								
Wilmington.....	New Castle.....	Dr. Urban D. Hedges.....	2, 11, 12, 14	95	31	56	79.6	3.30
MARYLAND.								
Annapolis.....	Anne Arundel.....	Wm. R. Goodman.....	11	93	31	61	78.8	2.77
St. Mary's city.....	St. Mary's.....	Rev. J. Stephenson.....	13	94	31	66	80.4	5.05
Sykesville.....	Carroll.....	Miss H. M. Baer.....	10, 12	90	31	59	75.8	3.00
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Inst'n.....	1	95	31	61	78.2	4.94
SOUTH CAROLINA.								
Hilton Head.....	Beaufort.....	Lient. C. R. Suter.....	3	98	21	76	84.1	3.66
KENTUCKY.								
Louisville.....	Jefferson.....	Mrs. L. Young.....	10	92	31	50	75.9	5.63
OHIO.								
Saybrook.....	Ashtabula.....	James B. Fraser.....	11	90	31	52	71.2	5.85
Austinburg.....	do.....	E. D. Winchester.....	12	92	30, 31	52	71.8	5.44
East Fairfield.....	Columbiana.....	S. B. McMillan.....	11	91	31	55	71.2	5.35
New Lisbon.....	do.....	J. F. Benner.....	10	98	31	52	71.6	4.74
Welsbfield.....	Geauga.....	B. F. Abell, A. M.....	10, 11, 12	90	31	51	71.5	8.23
Milnersville.....	Guernsey.....	Rev. D. Thompson.....	6, 10, 12	95	30	51	.....	7.39
Cleveland.....	Cuyahoga.....	Mr. & Mrs. G. A. Hyde.....	1, 13	90	31	55	73.2	6.71
Wooster.....	Wayne.....	Martin Winger.....	10, 11	95	30	54	73.5	.....
Gallipolis.....	Gallia.....	A. P. Rogers.....	1, 10, 11, 12	92	31	52	72.7	4.39
Kelley's Island.....	Erie.....	Geo. C. Huntington.....	11	91	31	58	75.0	3.20
Norwalk.....	Huron.....	Rev. A. Newton.....	10, 12	90	31	50	70.5	4.98
Kingston.....	Ross.....	Prof. Jno. Haywood.....	10	96	30, 31	56	75.2	2.29
Portsmouth.....	Scioto.....	L. Engelbrecht.....	11, 12	89	31	55	75.3	3.55
Urbana.....	Champaign.....	Prof. M. G. Williams.....	11	95	31	50	72.6	5.47
Hillsborough.....	Highland.....	J. McD. Mathews.....	10	92	31	53	73.7	3.70
Ripley.....	Brown.....	Dr. G. Bambach.....	9	102	31	58	76.9	3.58
Bethel.....	Clermont.....	Geo. W. Crane.....	6, 7, 10	95	31	50	74.1	4.25
Cincinnati.....	Hamilton.....	G. W. Harper.....	7	97	30, 31	57	76.0	3.42
College Hill.....	do.....	Jno. W. Hammitt.....	12	96	30, 31	62	78.1	6.88
Do.....	do.....	I. H. Wilson.....	8, 10, 13	88	30	59	74.6	4.35

Table showing the range of the thermometer, &c., for August—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MICHIGAN.								
Ypsilanti	Washtenaw	C. S. Woodard	8, 11	92	31	51	73.8	2.26
Agricultural College	Ingham	Prof. R. C. Kedzie	11	99	30	46	70.7	0.40
Garlick	Ontonagon	Edwin Ellis	10, 11	92	29	52	68.7	.....
INDIANA.								
Pennville	Jay	Miriam Griest	10	104	31	49	76.7	.....
Muncie	Delaware	E. J. Rice	15	97	30, 31	52	.....	4.75
Spiceland	Henry	Wm. Dawson	9	97	30	53	73.3	3.40
New Castle	do	Thos. B. Redding	9	99	31	50	73.0	4.16
Madison	Jefferson	Rev. Sam'l Collins	9, 15	91	31	60	78.0	10.00
New Albany	Floyd	Dr. E. S. Crozier	10	92	31	55	73.4	4.87
South Bend	St. Joseph	Reuben Burroughs	9, 10	98	18, 30	54	71.2	0.94
Indianapolis	Marion	Royal Mayhew	12	95	31	53	73.9	2.40
Bloomington	Park	Wm. H. Hobbs	8	98	28	50	74.3	.....
New Harmony	Posey	Jno. Chappellsmith	9	92	19	61	75.8	5.11
ILLINOIS.								
Evanston	Cook	Homer W. Scovill	12	86	21, 22	58	72.5	0.83
Chicago	do	Samuel Brooks	11	93	31	54	72.5	.....
Riley	McHenry	E. Babcock	10	95	18	52	69.6	1.32
Sandwich	DeKalb	Dr. N. E. Ballou	9, 10	95	22, 29, 30	54	71.4	1.08
Ottawa	La Salle	Mrs. E. H. Merwin	10	102	29	54	72.1	1.85
Winnebago	Winnebago	Jas. W. Tolman	10, 11	95	18, 19	54	70.7	1.88
Tiskilwa	Bureau	Verry Aldrich	14	94	19	52	72.3	.....
Wyanet	do	E. S. Phelps, jr.	8	97	18	47	73.8	1.75
Peoria	Peoria	Frederick Brendel	8	97	21	55	75.2	1.56
Pekin	Tazewell	J. H. Riblett	8	93	31	58	74.6	2.46
Monroe City	Monroe	Miss F. E. Whelpley	12	92	31	51	71.2	3.35
Hoylton	Washington	J. Ellsworth	9	100	21	58	77.0	2.13
Waverly	Morgan	Timothy Dudley	2	94	17, 18, 19, 21	61	75.1	1.55
Mount Pleasant	Henry	Rev. E. L. Briggs	24	94	29	58	73.7	1.85
Galesburg	Knox	Pf. Wm. Livingston	8, 10	90	31	53	72.4	2.22
Vermont	Fulton	Patterson Hamer	10	95	31	54	76.5	0.59
Manchester	Scott	Dr. J. & Miss Grant	15, 24	92	20	58	75.2	1.88
Augusta	Hancock	S. B. Mead, M. D.	24	92	21	55	73.1	1.29
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	8, 9, 10	88	30, 31	48	68.5	3.16
Milwaukee	Milwaukee	Carl Winkler	12, 13	89	30, 31	55	70.1	0.73
Do	do	I. A. Lapham, LL.D.	9	92	31	49	69.8	0.61
Green Bay	Brown	Friedrich Deckner	8	92	31	47	69.6	2.36
Geneva	Walworth	Wm. H. Whiting	9, 10, 11	90	19	50	69.6	.....
Waupaca	Waupaca	H. C. Mead	10	98	30, 31	52	73.8	.....
Embarrass	do	J. Everett Breed	8, 11	98	31	40	72.5	3.41
Beloit	Rock	Wm. Porter	10	96	30	50	70.9	1.77
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	8	88	29, 31	52	66.2	2.28
St. Paul	Ramsay	Rev. A. B. Paterson	9	93	17, 29	53	71.3	2.00
Mankota	Blue Earth	Wm. Kilgore	14	95	17, 18	50	.....	.....
New Ulm	Brown	Charles Roos	9, 10	97	17	54	74.5	2.00

Table showing the range of the thermometer, &c., for August—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
IOWA.								
Lyons.....	Clinton.....	P. J. Farnsworth, M.D.	10	94	31	56	72.2	8.10
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	10	95	20	52	72.4	1.35
Guttenburg.....	Clayton.....	P. Dorweiler.....	9, 10	88	20, 30	58	71.5	3.00
Monticello.....	Jones.....	Chauncey Mead.....	10	95	20	53	71.0	2.37
Independence.....	Buchanan.....	D. S. Deering.....	9, 10	95	19	55	71.0	.....
Do.....	do.....	A. C. Wheaton.....	10	98	17, 20	52	72.3	3.50
Iowa City.....	Johnson.....	Theo. S. Parvin, A.M.	8	91	20	50	73.0	7.60
Fort Madison.....	Lee.....	Daniel McCready.....	15	97	19, 20	52	74.2	2.37
Waterloo.....	Black Hawk.....	T. Steed.....	8, 9	90	19, 25	54	73.0	.....
Iowa Falls.....	Hardin.....	N. Townsend.....	9	91	19, 29	50	70.4	2.60
Algona.....	Kossuth.....	Dr. & Miss L. McCoy	10	96	18	50	71.7	1.50
Onawa.....	Monona.....	Dr. Rich'd Stebbins.	8, 9, 24	92	18	54	72.4	.....
MISSOURI.								
Allenton.....	St. Louis.....	Aug. Fendler.....	26	99	22	55	74.1	1.06
Canton.....	Lewis.....	Geo. P. Ray.....	12	95	19, 20	56	74.1	3.24
Harrisonville.....	Cass.....	John Christian.....	1	100	28	64	.....	4.44
KANSAS.								
Manhattan.....	Riley.....	H. L. Denison.....	1	99	19	56	78.3	1.64
Fort Riley.....	Davis.....	Elford E. Lee.....	31	107	17	65	82.1	2.41
NEBRASKA.								
Elkhorn City.....	Washington.....	Miss A. M. J. Bowen	24	99	17, 18	57	74.0	.....
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton.	24	91	18	58	75.2	1.48
OREGON.								
Auburn.....	Baker.....	S. M. W. Hindman.	17	95	12	50	72.5	6.41
UTAH TERRITORY.								
Great Salt Lake City	Great Salt Lake.	W. W. Phelps.....	5	95	13	62	77.9	12.50
CALIFORNIA.								
Sacramento.....	Sacramento.....	T. M. Logan, M. D.	28	94	31	62	74.7	0.80
Weadon Valley.....	Plumas.....	Mrs. M. D. Smith...	12	97	30	49	65.7	2.40

Table showing the average temperature and fall of rain (in inches and tenths) for the month of August, in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
		Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.
Maine.....	6	Deg. 62.4	In. 3.9	Deg. 63.8	In. 8.2	Deg. 64.2	In. 5.6	Deg. 63.6	In. 4.6	Deg. 66.9	In. 2.5	Deg. 64.2	In. 4.9	Deg. 66.8	In. 3.3	Deg. 66.8	In. 5.12
New Hampshire.....	4	64.9	2.5	65.9	5.9	66.6	5.9	65.1	4.1	58.7	3.4	64.3	4.0	66.4	4.8	68.9	5.85
Vermont.....	4	62.4	2.9	64.8	8.4	64.9	5.9	65.5	3.6	58.7	3.4	64.3	4.7	67.6	4.6	67.9	4.85
Massachusetts.....	1	66.1	3.2	65.8	11.1	67.4	5.1	66.0	5.1	66.8	4.6	66.4	5.8	69.8	4.6	69.6	4.72
Rhode Island.....	1	67.9	2.0	69.8	5.6	66.8	4.8	66.4	8.2	69.2	3.7	68.0	4.9	70.3	4.6	70.3	4.6
Connecticut.....	4	67.4	2.0	67.6	10.7	68.6	5.0	66.5	4.4	67.3	7.0	67.5	5.8	70.3	5.6	72.0	3.19
New York.....	81	67.9	2.4	68.1	4.8	69.0	4.7	69.4	3.5	68.8	3.6	66.7	3.8	69.6	5.4	72.4	6.15
New Jersey.....	4	70.7	2.2	70.3	4.8	72.3	6.6	70.4	3.7	70.0	4.6	70.7	4.5	76.6	4.1	75.0	2.61
Pennsylvania.....	26	71.4	3.8	69.6	4.1	69.6	4.8	71.3	3.4	71.2	4.1	70.6	4.0	73.6	2.6	74.0	4.80
Delaware.....	1					74.8	9.4	77.3	4.3							79.6	3.30
Maryland.....	5	72.6	5.7	70.1	5.1	72.5	5.9	73.2	2.6	73.2	3.2	72.4	4.4	78.5	0.51	78.3	3.61
District of Columbia.....	1	74.9	2.9	74.9	4.2	73.5	10.2	74.7	4.8	74.2	3.7	74.0	5.1	78.2	0.86	78.2	4.94
South Carolina.....	2	80.7	4.4	78.6	7.7	79.3	4.9	80.3	4.8	75.9	9.5	79.0	6.3	78.2		84.1	3.66
Tennessee.....	2	76.4	4.6	73.0	4.4	73.2	5.1	76.3	2.5	75.3	4.6	74.8	4.2				
Kentucky.....	4	75.4	4.4	72.6	3.5	73.3	3.2	75.6	2.3	72.6	9.4	73.9	4.0				
Ohio.....	81	72.2	4.1	68.3	1.9	69.9	3.6	71.5	4.4	71.3	3.9	70.6	3.6	72.8	2.7	73.6	5.63
Michigan.....	8	68.5	2.3	65.0	1.4	66.7	4.5	69.2	4.0	69.0	2.6	67.7	3.0	70.3	5.6	71.1	1.33
Indiana.....	4	74.0	4.4	71.3	2.9	72.9	4.3	73.7	4.0	73.6	4.3	73.1	4.0	73.6	2.6	74.1	4.45
Illinois.....	13	71.7	4.1	70.4	2.8	72.7	4.5	72.5	3.6	72.9	2.5	71.0	3.4	72.9	2.4	73.3	1.72
Wisconsin.....	9	67.7	1.8	66.9	1.9	67.4	3.6	68.9	3.6	69.5	1.8	68.1	2.5	69.3	3.1	70.6	2.01
Minnesota.....	3	63.4	10.5	63.4	2.7	67.8	3.9	68.6	3.9	66.2	4.1	65.9	5.0	67.0	3.2	70.7	2.09
Iowa.....	2	68.6	3.3	67.8	1.6	71.0	3.8	71.9	3.3	72.5	1.8	70.4	3.2	74.9	5.2	72.1	3.60
Missouri.....	2	74.4	6.5	74.0	4.4	73.4	3.5	78.7	2.9	76.1	2.9	75.3	4.0	77.7	3.3	74.1	3.11
Nebraska Territory.....	2						10.1	73.6	1.9	73.8	1.6	73.7	4.4	72.5	2.7	74.6	1.48
Kansas.....	2					75.8	3.9	75.9	4.0	75.9	5.8	75.9	4.5	77.8	4.7	80.2	2.14
California.....	4			63.6	0.0	61.7	0.0	62.2	0.1	71.3	0.0	68.0	0.0			70.2	1.65

AUGUST, 1864.

THE DROUGHT.

We append a few notices in continuation of those previously given on the prevalence and extent of the drought.

Santa Barbara, California.—"The absence of almost any rain during the past winter has made this part of the State almost a desert. I do not think more than an inch and a half of rain has fallen since last spring. The cattle have nearly all died, and the face of the country is as barren as the streets of a city. More rain fell last month than in all the rest of the season together; while, in ordinary years, May has little rain. Instead of rain storms, which usually come from the southeast, we had, during the months of February, March, and April, a succession of northwesterly winds, blowing with great violence from about 10 a. m. till 8 or 10 p. m., which is also a strange phenomenon here."—*W. W. Hays, M. D., June 1, 1864.*

Sacramento, California.—With the exception of the season of 1850-'51, the past, which ends with the present August, has been characterized by a drought as disastrous as it is remarkable. Never have the streams and springs been so completely dried up before, or the water in the Sacramento river been observed at so low a point. Fortunately, just as navigation had become difficult in the extreme, a heavy rain, unprecedented as to the extent of territory over which it spread as well as its duration and quantity, came most opportunely to swell the shallow streams. Owing to the immense quantities of rain that fell north of the American river, the Sacramento rose some fifteen inches.

Fort Madison, Iowa.—August, a very dry month; pastures bare, and wells low and failing.

Waverly, Illinois, August 31.—August has been remarkable for its extreme drought. The wells and streams are very low, water for stock very scarce, and many families on short allowance for family use. The pastures are parched and dry. The corn crop has been injured to some extent by drought, but a much better crop than last year.

Pomfret, Connecticut, August 31.—The drought is greater here than has been known for many years. Wells are getting dry that are not wont to fail; grass for the cattle fails.

Mendon, Massachusetts, August 31.—Water in well but once as low as now in the last thirty-eight years.

Windsor, Nova Scotia, September 14.—The drought has not extended to these regions. There was a good deal of rain about seed-time, then a drought till the middle of hay-time, when there were heavy falls of rain, and the weather has been upon the whole wet ever since. Private letters from England (Suffolk) received a fortnight since, informed me that the drought there had been excessive, the ponds being drier than ever remembered to have been before.—*J. D. Everett.*

AURORA.

August 24, 1864.—On the night of the 24th of August a beautiful arch of light, extending from horizon to horizon through or near the zenith, was observed over a wide extent of country. The following notices, taken from the registers, describe it as seen by observers from Maine to Minnesota:

Cornish, Maine.—August 24.—A faint aurora in the evening.

Steuben, Maine.—August 24.—Aurora at 9 p. m.; a faint white arch half-way up north star.

Mendon, Massachusetts.—August 24.—Aurora in a single jet from NW. to the zenith; very beautiful at 10 p. m.

Worcester, Massachusetts.—August 24.—At 11 p. m. the sky was spanned

from east to west with a bright, well-defined belt of greyish white, extending from horizon to horizon, and passing a little south of the zenith. There was no appearance of aurora in the northern horizon, but the phenomenon was undoubtedly auroral in its character.

Skaneateles, New York.—August 24.—A singular aurora appeared from 9 to 11 p. m., in the form of a single belt, dividing the hemisphere into two equal parts. The eastern portion of the bow moved slowly southward.

Buffalo, New York.—August 24.—An uncommon auroral phenomenon was visible here August 24, at about 10 o'clock p. m. It consisted of a luminous bow extending from fifteen to twenty degrees above the horizon north of the star Arcturus, passing a little north of Corona through Lyra and Cygnus, and easterly as far as Andromeda. At its lowest extremity, which appeared to be its commencement, it was very luminous and much more dense than the tail of a comet. It made its appearance almost suddenly and my first impression was that it was one of those wanderers paying us an unexpected visit. I soon discovered that it varied in intensity, and overhead slight scintillations were visible. At the extremity above named it was only a degree or two in width, but as it extended upwards to Lyra and Cygnus it was fifteen to twenty degrees wide and continued about the same to its furthest extremity, where it became very thin and rare. The wind was blowing gently from the south, but the whole of this arch moved in an opposite direction. There was but very little auroral light in the northern horizon, no clouds to be seen, but summer-lightning all around. During the twenty minutes that I viewed this phenomenon there were several small meteors visible. To-day (25th) at noon, we had a tempest, after which much wind from the southwest.—*Henry Mills.*

Wilson, New York.—August 24.—Aurora made a fine display to-night, commencing at 9.45 o'clock, by showing a beam of white light in the W.N.W. from the horizon to 45° high; also faint diffused light in the north. At 10 o'clock the beam had extended completely over the heavens from W.N.W. to E.S.E. by E., forming a brilliant bow or band of light from horizon to horizon, with a slight inclination to the south. At each end the bow seemed to touch the horizon by a fine point, (a little the more distinct at the westerly end,) and gradually expanded to the zenith, where it was about one degree in width. There was hardly any change except that it gradually grew fainter till 11 o'clock, when there was only a trace to be seen.

Rochester, New York.—August 24.—Splendid auroral arch spanned the heavens at 10½ p. m., south of zenith, from S. of E. to N. of W. when in zenith, and was a bright white band or arch of fine shining fibres; disappeared at east first, then higher up, till at 11 it was gone. All over the north was the glow of the brightest and most magnificent white canopy of light I ever saw.—(*Dewey.*)

Rochester, New York.—August 24.—Shortly before 10 p. m. discovered a beautiful luminous arch of auroral light, two degrees in width, extending entirely over from NW. to SE. When first seen it was one continuous stream of light, but subsequently broke into several parts, which soon became united again to complete the arch. At times these portions would reunite by a general movement eastward, but at others by the spaces between them becoming reilluminated, thereby restoring the whole line. The eastern third remained more intact. At 10.30 the western half only remained, and that much narrower. At 11 p. m. all had disappeared. During the whole evening there have been frequent flashes of lightning at the north, though very few clouds were visible, the northern sky having more the appearance of moderate aurora borealis. At the centre the band was about two degrees in width, tapering nearly to a point at each extremity.—(*Mathews.*)

Palmyra, New York.—August 24.—Ten minutes after 10 p. m., discovered an aurora, consisting of a perfect arch, extending from the horizon at NW. to the horizon at the SE., of a uniform white color, retaining the same apparent

position for twenty or twenty-five minutes, when it disappeared. There were dark clouds in the north, also lightning in that direction; could not discover any aurora in any other part of the sky. The part of the sky where it appeared was clear. There was no wind at the time.

Canonsburg, Pennsylvania.—August 24.—Aurora.

East Fairfield, Ohio.—August 24.—A well-defined auroral arch, of near fifteen degrees elevation at 8 p. m., which entirely disappeared before 9. Saw no streamers.

Austinburg, Ohio.—August 24.—Aurora appeared at 8 p. m., black cloud underneath; disappeared at 9½.

Winnebago, Illinois.—August 24.—Aurora through the evening; faint light in the north.

Embarrass, Wisconsin.—August 24.—Singular aurora at 10½ p. m., continuing half an hour; it was in the form of a bow, extending entirely across from east to west, nearly overhead, and very bright. At the same time there was a slight bank of aurora to the north.

Green Bay, Wisconsin.—August 24.—Aurora, a narrow steadily shining belt, of pure white, extended across the heavens, a little north of the zenith from the east to the west horizon; it remained thus less than an hour, and gradually vanished.

Manitowoc, Wisconsin.—August 24.—Aurora at the north from 9 to 10 p. m.

Dubuque, Iowa.—August 24.—Aurora from 10 p. m. to 4 a. m. next morning; quite brilliant after midnight.

Mankato, Minnesota.—August 24.—Aurora at 8.30 p. m.; commenced as a faint spot of light in the northwest. First arch formed at 9 p. m., the upper portion just below the pole star; arch very distinct, but no cloud below. Beams moved constantly along the arch for twenty minutes, moving from east to west. At 9.40 a second arch formed below the first, more brilliant, and with dark cloud below. The first arch disappeared entirely at 10 o'clock, and reappeared in a few moments more brilliant than before. At 10.15 beams from the lower arch appeared.

New Ulm, Minnesota.—August 24.—Aurora at 8.30 p. m.

STORM OF AUGUST 26, 1864.

Below are a few notices of the weather at some of the western stations at the time of the hurricane, which was so severe in the southeastern part of Indiana.

Urbana, Ohio.—August 26.—Thunder from 5¼ a. m. to 9 a. m.; very heavy at 7½ a. m. A peculiar morning. There was a very heavy fog early, and it did not disappear till after the very hard rain at 7½ a. m. There was thunder again from 5 p. m. to 7 p. m.; a violent gale blew from the west from 5¼ to 6¼ p. m. No damage was done by the wind in this immediate neighborhood. Lightning off south at 8 p. m.

East Fairfield, Ohio.—August 26.—A storm of wind from the NW. commenced at 6 p. m., succeeded by rain and much thunder and lightning until 8 p. m.

Saybrook, Ohio.—August 26.—Heavy dew in the morning. At 5 p. m. heavy thunder storm from W.S.W.

West Milton, Miami County, Ohio.—August 26.—The storm gathered in the north between 4 and 5 p. m. The heavens became very black, and there was one constant roll of thunder. The storm moved south, passing overhead. The rain fell in torrents, accompanied with hail for perhaps ten minutes. The hail was confined to a very narrow strip of country, or it would have done great damage. Now and then a hail-stone fell of great size and peculiar structure; one of the largest which I measured was seven inches in its greatest circumference; the shape was the usual nucleus of hard ice, surrounded by concentric layers, but flat, and on the outer rim covered with jagged points of ice, looking

like large flattened chestnut-burrs. A man in the neighborhood said he weighed one of these monsters in a spring scale, and it weighed nearly a pound.—(*G. W. Harper, of Cincinnati.*)

Austinburg, Ohio.—August 26.—Thunder shower at 5.15 p. m., with high wind. Lightning north and east at 9 p. m.

Cleveland, Ohio.—August 26.—Overcast most of the day. Furious wind and heavy rain after 4½ p. m.; three-quarters of an inch of rain fell in ten minutes.

Kingston, Ohio.—August 26.—The rain this morning came up with thunder and lightning. This evening, at 6½ o'clock, the thunder and lightning were severe. At 9 o'clock p. m., there is still lightning, but it is not raining.

New Lisbon, Ohio.—August 26.—Storm of rain, wind, thunder, and lightning, from 6 a. m. to 1 p. m.

Kelley's Island, Ohio.—August 26.—Very violent shower from 3.30 p. m. to 4.15 p. m. Wind very strong from NW. For a few moments hailstones, size of hazelnuts, and some still larger, fell in large quantity, doing considerable damage to grapes. An inch and two-hundredths of water fell in three-fourths of an hour.

Newcastle, Indiana.—Very heavy rain and thunder storm from 4½ to 5 a. m. during which time it rained an inch and six-tenths. Showers at noon and 5½ p. m. Incessant lightning in S. and SE. all the evening, quite distant and low down.

New Albany, Indiana.—August 26.—A severe rain-storm occurred to-day. At 6 a. m. the wind was SW., with dark clouds to the westward, with heavy thunder. At 7¼ or 7½ a. m. it commenced raining, the water coming down in a perfect deluge—the wind rapidly changing from the SW. to W., then NW., and finally to NE. About one inch of rain fell within an hour and a half. About noon, the wind having changed back to the SW., another storm came up, in which nearly another inch of rain fell. Soon after sunset another cloud came up, but the amount of rain did not exceed fifteen-hundredths of an inch. So great a quantity of rain has not fallen in one day in this vicinity for several years. At 9 p. m. the sky was clear, with the exception of a low bank of clouds to the southward, constantly illuminated by a blaze of sheet-lightning; wind NW.

Indianapolis, Indiana.—August 26.—About 3½ p. m., dark clouds in NW. from this point were rising, with lightning and heavy thunder; supposed 15 to 20 miles distant. These bore round N. and NE.; the main dark clouds, rising about 45° above the horizon, were darker, and moved with greater velocity than usual thunder-storms. About 4 p. m., or a little earlier, the main force of this cloud had passed over, and in its track northward, clouds broken and agitated, without special direction, had taken its place, rising higher than the storm-cloud. About this time, 4 p. m., a succeeding thunder-storm of ordinary magnitude, rising in NW., was advancing towards this place, and at the same time clouds rising in southwest were coming up and passing overhead with great velocity toward the NE. The clouds seemed to threaten a storm for some time, but settled in a brisk shower, without wind, at 4½ to 4¾ p. m.

Lawrenceburg, Dearborn county, Indiana.—Seventy-five miles southeast of Indianapolis, about a quarter before six o'clock in the afternoon of August 26, the train on the Indianapolis railroad, which left Cincinnati at 4.20 p. m. for Chicago, was blown from the track at a point near Wirtnell's bridge, fifteen miles below Lawrenceburg, by one of the most terrific tornadoes that has ever visited that section of the country. As the train approached the bridge, the atmosphere seemed filled with branches of trees and missiles of various kinds, which the wind had taken up in its path; and the engineer, thinking the bridge unsafe, increased the speed of the engine, so as to reach the protection of the hills beyond. He was too late; for the hurricane, resistless in its energy and

overwhelming in its power, lifted the entire train into the air, and hurled the rear portion of it over a steep bank; the baggage car, which was very heavily laden, being whirled diagonally across the track; and the rear of the first passenger car, still uncoupled, being suspended over the precipice at the side of the track. The train was heavily loaded with passengers, from thirty to forty of whom were injured. With the violent blasts of wind came also torrents of rain.—*Newspaper.*

Spiceland, Indiana.—August 26.—Began to rain and thunder about 3½ a. m.; hard thunder and heavy rain at a quarter before 6; rained some in the afternoon; appearance of storm in SW. about 3 to 4 p. m.

Madison, Indiana.—August 26.—Two inches of rain fell from 5 a. m. to 12 m.

Dubuque, Iowa.—August 26.—The wind blew in a gale nearly all day from the NW.; most violent about 11 a. m., with a very dark blue sky, and occasionally a white scudding cloud of small size. The barometer gradually fell, and reached its lowest point at about 5 p. m., after which it began to rise. The hygrometer showed a very dry state of the atmosphere all day.

FROST.

Tioga, Pennsylvania.—August 30, 31.—A very little frost on the hills.

Rensselaer, Indiana.—August 31.—Light frost in the morning; the first of the season; did no injury to anything.

Pennville, Indiana.—August 27.—Very light frost in places, doing very little, if any, damage. Frost here every month this year, and also last year.

Oshtemo, Michigan.—August 30.—Frost this morning, and hurt the crops in low places. 31st, frost again this morning.

Green Bay, Wisconsin.—August 30.—Temperature last night almost to the freezing point. Mean temperature to-day, 54.7°, the lowest of the month.

Embarrass, Wisconsin.—August 30.—At 5 a. m., thermometer 37°; on the 31st, at the same hour, 38°.

The same day on which this frost occurred was, at some stations further west, the warmest day of the month.

Fort Laramie, Idaho.—August 31.—This was the warmest day of the month. The temperature at 2 p. m. was 100°; at 9 p. m., 84°; the mean of the day, 86°; all which were the highest during the month; wind from the southwest.

Manhattan, Kansas.—August 31.—The temperature at 2 p. m. (98°) was higher than on any day except the first, when it was 99°.

Fort Riley, Kansas.—August 31.—Wind very hot and strong from 12 m. until 4 p. m. Temperature above 100° until 5½ p. m. At 2 p. m., 107°; mean of the day, 99.66°. The warmest day of the month.

SEPTEMBER.

Table showing the highest and lowest range of the thermometer, (with dates prefixed.) the mean temperature, and amount of rain, (in inches and tenths,) for September, 1864, at the following places, as given by the observer's name. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Steuben	Washington	J. D. Parker	28	72	18, 22	38	53.6	4.10
West Waterville	Kennebec	B. F. Wilbur	1	76	22	40	56.1	3.25
Lisbon	Androscoggin	Asa P. Moore	1, 2	77	26	35	55.3	6.08
Cornish	York	Silas West	1	71	26	35	52.2	3.70
Cornishville	do	G. W. Guptill	1, 2	72	26	39	56.5	3.97
NEW HAMPSHIRE.								
Shelburne	Coos	Fletcher Odell	1	79	27	33	55.1	.....
Stratford	do	Branch Brown	2	72	22, 26	32	51.3	5.11
Barnstead	Belknap	Chas. H. Pitman	2	79	26	40	58.4	3.38
Claremont	Sullivan	Arthur Chase	27	78	17, 26	40	58.0	3.10
Do	do	Stephen O. Mead	26	80	25, 26	42	58.1	.....
VERMONT.								
Lunenburg	Essex	H. A. Cutting	9	78	18, 26	32	55.6	2.75
Craftsbury	Orleans	Jas. A. Paddock	27	73	26	34	51.6	4.80
Calais	Washington	Jas. K. Tobey	27	72	26	35	51.6	.....
Burlington	Chittenden	Rev. McK. Petty	27	69	26	38	54.0	5.49
Middlebury	Addison	H. A. Sheldon	3, 18	70	26	42	56.0	8.32
MASSACHUSETTS.								
Sandwich	Barnstable	Eugene Tappan	3	84	26	44	61.7	2.32
Newbury	Essex	Jno. H. Caldwell	24	77	26	39	57.5	.....
Topsfield	do	A. M. Merriam	27	82	8	42	59.6	2.40
New Bedford	Bristol	Sam'l Rodman	2	72	26	40	57.5	2.19
Worcester	Worcester	F. H. Reed	23	82	27	43	59.3	2.93
Mendon	do	Jno. G. Metcalf	23	79	26	40	58.8	2.45
Amherst	Hampshire	Prof. E. S. Snell	2	75	26	41	57.8	2.92
Springfield	Hampden	J. Weatherhead	2, 27	88	26	36	59.2	2.61
Westfield	do	Rev. E. Davis	2, 3	77	8	40	57.8	2.86
Richmond	Berkshire	Wm. Bacon	1, 22	78	26	36	.....	6.38
William's College	do	Prof. A. Hopkins	27	77	26	41	56.6	3.06
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	27	76	26	40	57.7	3.07
Columbia	Tolland	Wm. H. Yeomans	3	80	8, 9	38	61.3	.....
Middletown	Middlesex	Prof. Jno. Johnston	3	84	8	42	61.3	3.45
Colebrook	Litchfield	Charlotte Rockwell	2	76	26	39	57.9	.....
NEW YORK.								
South Hartford	Washington	G. M. Ingalsbe	27	79	26	44	60.9	4.55
Fishkill	Dutchess	Wm. H. Denning	2, 3	77	31	43	60.6	3.62
Garrison's	Putnam	Thos. B. Arden	2	72	1, 26	47	61.0	3.40
Throg's Neck	Westchester	F. M. Rogers	27	78	26	48	63.2	4.96
Deaf and Dumb Inst	New York	Prof. O. W. Morris	2, 24, 27	80	17	55	65.7	5.48

Table showing the range of the thermometer, &c., for September—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK—Cont'd.								
St. Xavier's College	New York	Rev. Jno. M. Aubier	27	°	26	°	°	<i>In.</i>
Flatbush	Kings	Eli T. Mack	27	79	26	50	63.5	5.14
Schenectady	Schenectady	Harmon V. Swart	27	78	26	46	61.1	4.34
Gouverneur	St. Lawrence	C. H. Russell	23	80	26	41	57.3	.....
Clinton	Oneida	C. H. Russell	23	76	30	34	59.4	5.65
Clinton	Oneida	H. M. Paine, M. D.	3, 27	82	26	45	62.0	2.72
South Trenton	do	Storrs Barrows						3.64
Theresa	Jefferson	S. O. Gregory	3	80	26	35	56.5	4.30
Oswego	Oswego	Wm. S. Malcolm	23	77	26	41	58.9	1.85
Palermo	do	E. B. Bartlett	23	81	26	36	57.7	2.70
Baldwinsville	Onondaga	John Bowman	3, 23	72	26	42	57.0	.....
Skaneateles	do	W. M. Beauchamp	27	76	26	40	57.0	.....
Auburn	Cayuga	John B. Dill	23	82	26	45	63.7	.....
Palmyra	Wayne	Stephen Hyde	23	80	26	47	61.0	.....
Nichols	Tioga	Robert Howell	27	88	17, 21, 30	44	59.0	.....
Rochester	Monroe	Prof. C. Dewey	23	80	17	42	59.3	1.83
Jamestown	Chautauqua	Rev. S. W. Roe, M. D.	7	86	30	44	59.3	3.80
NEW JERSEY.								
Newark	Essex	W. A. Whitehead	2, 27	77	26	44	62.2	4.68
Mount Holly	Burlington	M. J. Rhees, M. D.	24	78	26	47	63.8	.....
Progress	do	Thos. J. Beans	2	80	12, 26, 30	52	63.1	6.28
Haddonfield	Camden	J. S. Lippincott	24	79	25, 26	50	63.4	6.55
Greenwich	Cumberland	C. Sheppard	24	75	26	47	60.6	4.28
PENNSYLVANIA.								
North Whitehall	Lehigh	Edward Kohler	24	78	20	42	61.0	.....
Nazareth	Northampton	L. Ricksecker	2	82	30	45	62.5	.....
Fallsington	Bucks	Ebenezer Hance	2, 22, 24	78	26	51	63.7	4.10
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	24	81	26	53	66.8	7.32
Germanstown	do	Thos. Mehan	2	86	8, 12	50		.....
Moorland	Montgomery	Anna Spencer	2	78	26	48	62.0	5.66
Harrisburg	Dauphin	Jno. Heisely, M. D.	10, 24	79	20	53	65.2	12.36
Fleming	Center	Samuel Brugger	9, 10, 17, 20	78	20	42	60.8	6.66
Pennsville	Clearfield	Elisha Fenton	22	80	20	40	57.7	4.32
Blairsville	Indiana	W. R. Boyers	1, 2, 4, 5, 26	72	14, 22, 24	48	60.0	16.91
Connellsville	Fayette	John Taylor	2, 5, 23	78	12	44	61.6	.....
Cannonsburg	Washington	Rev. W. Smith, D. D.	2	75	1, 25	44	59.8	8.55
DELAWARE.								
Wilmington	New Castle	U. D. Hedges, M. D.	3, 24, 29	80	25	51	66.7	8.80
MARYLAND.								
Annapolis	Anne Arundel	Wm. R. Goodman	24	82	26	50	67.2	3.65
St. Mary's City	St. Mary's	Rev. J. Stephenson	5, 24	82	26	54	70.1	2.85
Sykesville	Carroll	Miss H. M. Baer	24	80	8, 20, 25	52	64.0	3.50
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Instit'n.	24	81	20, 26	52	66.0	2.57

Table showing the range of the thermometer, &c., for September—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain
SOUTH CAROLINA.								
Hilton Head	Beaufort	Lieut. C. R. Suter ..	3	98	21	76	86.8	In. 2.86
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	4, 23	84	19	39	67.8	4.33
OHIO.								
Austinburg	Ashtabula	E. D. Winchester ...	22, 23	78	13, 28	44	58.0	5.85
Saybrook	do	Jas. B. Fraser	22	77	28	46	60.8	4.55
New Lisbon	Columbiana	J. F. Benner	14, 23	80	20, 26	42	60.5	5.97
Welshfield	Geauga	B. F. Abell, A. M. ...	9, 10	76	24, 25	46	60.5	7.54
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	23	80	25, 30	50	63.1	5.19
Wooster	Wayne	Martin Winger	10	81	13	44	63.0	.....
Gallipolis	Gallia	A. P. Rodgers	2, 5	82	13	44	65.7	3.46
Kelley's Island	Erie	Geo. C. Huntington.	10, 23	80	25	50	64.4	4.89
Norwalk	Huron	Rev. A. Newton	23	83	25	44	61.2	5.11
Westerville	Franklin	Pf. H. A. Thompson.	10, 23	80	20	48	63.0	2.83
Kingston	Ross	Pf. John Haywood ..	2	87	13, 24	50	65.5	3.49
Portsmouth	Scioto	L. Engelbrecht	14	81	13	48	66.5	4.70
Urbana	Champaign	Pf. M. G. Williams ..	2, 13, 10	80	25	42	63.1	3.71
Hillsboro'	Highland	J. McD. Mathews	2	84	25	44	64.5	3.32
Ripley	Brown	Dr. G. Bambach	23	86	20	45	67.4	6.55
Bethel	Clermont	Geo. W. Crane	2	84	24	42	63.2	7.66
Eaton	Preble	Miss Ollitippa Larsh.	23	81	25	47	63.0	10.90
College Hill	Hamilton	I. H. Wilson	3	84	25	50	65.9	2.50
Do	do	John W. Hammitt	2	84	26	50	62.5	.....
Cincinnati	do	George W. Harper	2	88	19	44	65.7	8.63
MICHIGAN.								
Pontiac	Oakland	James A. Weeks	23	79	12, 25	40	57.6	.....
Monroe City	Monroe	Miss F. E. Whelpley.	10	83	25	45	60.8	3.28
Agricultural College	Ingham	Prof. R. C. Kedzie	9	79	25	41	59.6	3.40
INDIANA.								
Spiceland	Henry	William Dawson	2	84	25	42	63.8	4.90
New Castle	do	T. B. Redding, A. M.	3, 23	86	19	40	63.1	5.89
Madison	Jefferson	Rev. S. Collins	23	83	19	49	.....	5.75
New Albany	Floyd	Dr. E. S. Crozier	5	85	25	45	68.8	1.64
South Bend	St. Joseph	Reuben Burroughs ..	22	85	30	38	60.9	4.33
Indianapolis	Marion	R. Mayhew	3, 10	84	19, 25	41	64.3	3.19
Rensselaer	Jasper	Dr. J. H. Loughridge	2, 3	87	19	34	64.7	5.55
New Harmony	Posey	John Chappellsmith.	4	91	25	46	69.4	2.65
ILLINOIS.								
Chicago	Cook	Samuel Brookes	1	85	24	37	59.0	.....
Ottawa	La Salle	Mrs. E. H. Merwin ..	9	94	24	36	63.8	2.58
Winnebago	Winnebago	James W. Tolman	9	86	24	39	61.8	3.57
Wyanet	Bureau	E. S. & Miss L. Phelps	3	98	28	36	65.7	3.38
Tiskilwa	do	Verry Aldrich	3	92	24, 25, 28	40	64.5	.....
Hennepin	Putnam	Smiley Shepherd	10	95	31	48	74.7	.....
Peoria	Peoria	Frederick Brendel ..	3	98	19, 24	43	67.3	4.81

Table showing the range of the thermometer, &c., for September—Continued

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
ILLINOIS—Cont'd.				°		°	°	In.
Elmore	Peoria	W. H. Adams .....	.....	.....	.....	.....	.....	3.50
Pekin	Tazewell	J. H. Riblett	3	96	24	44	66.7	4.65
Hoylton	Washington	J. Ellsworth	2, 3	104	19	43	69.5	2.00
Waverly	Morgan	Timothy Dudley	3	98	24	44	68.2	3.65
Galesburg	Knox	Prof. Wm. Livingston	3	92	24	38	63.6	2.16
Augusta	Hancock	S. B. Mead, M. D.	3	100	28, 30	45	66.9	4.16
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	10	72	30	34	58.1	3.29
Milwaukee	Milwaukee	I. A. Lapham, LL.D.	9	84	25	40	61.0	2.93
Green Bay	Brown	Friedrich Deckner	17	77	24, 28, 29	36	58.3	7.74
Geneva	Walworth	William H. Whiting	9	78	24	40	60.3	.....
Delavan	do	Levens Eddy	9	82	24	37	60.1	3.74
Embarrass	Waupacca	Edward E. Breed	26	80	28	27	58.0	4.36
Waupacca	do	H. C. Mead	2	82	24, 28, 29, 30	42	.....	.....
Beloit	Rock	William Porter	9	84	24	41	61.8	3.90
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	8	70	30	32	52.5	2.32
St. Paul	Ramsey	Rev. A. B. Paterson	9	93	17, 29	53	71.3	2.00
New Ulm	Brown	Charles Roos	9	93	28	32	62.7	0.48
IOWA.								
Lyons	Clinton	Dr. P. J. Farnsworth	13	86	24	40	64.7	2.60
Dubuque	Dubuque	Asa Horr, M. D.	9	89	24	39	63.4	2.29
Guttenberg	Clayton	Philip Dorweiler	9	81	24	42	63.3	6.80
Monticello	Jones	Chauncey Mead	13	90	28	34	60.1	1.17
Independence	Buchanan	A. C. Wheaton	9	89	29	34	65.2	4.00
Do	do	D. S. Deering	13	87	24	37	62.4	.....
Iowa City	Johnson	Theo. S. Parvin, A.M.	13	92	24	36	66.9	2.12
Fort Madison	Lee	Daniel McCready	3	97	24	37	66.7	2.57
Waterloo	Black Hawk	T. Steed	13	88	28, 29	40	63.2	1.88
Iowa Falls	Hardin	N. Townsend	9, 21	86	19, 24	40	64.3	2.14
Algona	Kossuth	Dr. & Miss McCoy	9	89	24	32	60.9	2.31
MISSOURI.								
Allenton	St. Louis	A. Fendler	2	107	19, 25	37	67.9	3.37
Canton	Lewis	George P. Ray	3	103	19	38	68.1	5.24
Easton	Buchanan	P. B. Sibley	1	104	29	36	68.9	3.62
KANSAS.								
Manhattan	Riley	H. L. Denison	1, 3	104	24	42	70.9	2.30
Fort Riley	Davis	H. A. Sturges	1, 2	106	30	52	75.7	2.15
NEBRASKA TER.								
Elkhorn City	Washington	Miss. A. M. J. Bowen	2	99	24	32	66.4	.....
Bellevue	Sarpy	Rev. Wm. Hamilton	2	99	24, 30	40	67.4	1.77
UTAH TERRITORY.								
Great Salt Lake City	Great Salt Lake	W. W. Phelps	10	87	28	45	65.9	7.43

Table showing the average temperature and fall of rain (in inches and tenths) for the month of September in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	9	56.4	1.8	58.8	3.5	57.8	1.6	58.8	3.5	55.9	4.0	57.6	2.9	55.9	3.08	54.7	4.92
New Hampshire.....	4	59.2	0.3	60.1	4.9	58.7	1.3	58.7	5.0	48.9	4.2	56.9	3.1	54.9	2.34	56.9	3.86
Vermont.....	4	58.1	4.5	58.3	4.0	57.8	1.8	59.0	3.8	56.0	4.2	57.8	3.7	56.3	3.62	53.8	5.34
Massachusetts.....	12	61.1	1.0	61.4	4.8	60.8	2.9	61.1	3.8	58.4	4.0	62.2	3.3	58.5	3.38	58.6	3.01
Rhode Island.....	1	61.9	0.3	62.2	5.1	60.3	2.3	62.2	3.1	59.6	3.7	61.5	2.9	57.8	1.74	59.6	3.96
Connecticut.....	4	62.4	0.5	63.4	4.7	61.5	2.0	61.4	4.9	59.1	4.0	61.6	3.3	58.1	2.31	59.6	3.31
New York.....	18	62.2	1.9	61.9	3.7	61.2	2.8	61.2	3.7	59.3	4.2	61.8	3.3	56.9	2.31	60.2	3.86
New Jersey.....	4	63.4	2.9	63.1	2.8	63.3	2.7	63.6	1.5	62.1	7.3	61.3	3.5	60.0	1.30	62.6	5.45
Pennsylvania.....	20	66.7	4.5	64.1	2.4	64.4	2.5	64.1	1.7	62.7	7.0	61.4	3.5	62.4	2.52	61.9	8.34
Delaware.....	1	66.5							2.7		4.8	68.9	3.3			66.7	8.80
Maryland.....	1	67.8							3.6		8.4	66.5	4.7			67.1	3.33
District of Columbia.....	1	70.1							2.9		67.2	67.8	3.0			66.0	2.57
South Carolina.....	1	78.2							72.0		74.1	74.4	3.1			67.1	8.34
Tennessee.....	4	73.8							6.0		3.1	63.7	3.1			63.3	2.86
Kentucky.....	2	71.5							1.8		69.4	63.4	3.1			66.8	2.86
Ohio.....	18	69.7	4.7	61.8	1.4	63.3	2.3	67.3	1.8	69.4	3.4	63.7	2.9			67.8	4.33
Michigan.....	8	65.0	5.4	63.3	2.4	65.4	1.4	65.0	1.6	62.9	3.2	65.3	2.9			63.4	5.38
Indiana.....	4	71.5	5.7	57.8	3.1	61.6	2.6	60.3	3.1	63.5	3.3	61.6	3.6			62.1	3.34
Illinois.....	13	69.9	2.6	63.3	0.7	67.7	1.6	66.2	2.9	65.2	3.4	66.7	3.3			63.7	3.45
Wisconsin.....	9	63.0	4.5	58.4	3.5	61.8	2.2	65.1	3.7	62.3	3.0	63.4	2.9			60.5	4.24
Minnesota.....	3	60.4		49.9		60.0	3.0	60.6	4.1	58.0	3.0	60.4	3.8			58.3	4.33
Iowa.....	8	67.1	4.7	61.5	2.9	63.2	2.4	63.7	3.6	55.4	3.6	56.7	3.4			59.1	1.57
Missouri.....	8	73.1	3.9	65.6	2.9	70.0	2.1	67.3	3.9	66.4	2.9	63.8	3.3			62.2	2.79
Nebraska.....	2								2.5		4.4	63.3	3.4			65.6	4.08
Nebraska Territory.....	2								2.6		2.1	67.7	2.4			65.6	1.75
Kansas.....	2								2.5		1.9	63.5	2.2			72.6	2.33
California.....	2								0.0		0.0	68.2	0.0			73.3	2.33

SEPTEMBER, 1864.

FROST.

Wolfville, Nova Scotia.—September 8.—First appearance of frost on low land.

Steuben, Maine.—September 6.—Hard frost this morning. 8th, very heavy frost this morning; ground looked almost as if very white with snow till 6 a. m. 18th, a severe frost; ground almost as white as if covered with snow; water froze an eighth of an inch thick.

Cornishville, Maine.—September 26.—Slight frost, first of the season, no injury done.

West Waterville, Maine.—September 7.—Slight frost in low places near the river. 18th, slight frost, not enough to kill vines, beans, or potatoes, cut off vegetation in other locations in this vicinity. 22d, slight frost.

Shelburne, N. H.—September 26.—A few flakes of snow falling at 8.30 a. m. 27th, heavy frost, ground said to be frozen in some places.

Barnstead, N. H.—September 7, 27.—Light frost.

Claremont, N. H.—September 17, 18.—Slight frost; no damage done except in particularly exposed places.

Stratford, N. H.—September 18.—Frost this morning.

Craftsbury, Vermont.—September 22.—A slight frost this morning, the first of the season; sufficient to kill pumpkin and cucumber vines, but having no effect on late planted potatoes, which are as green as in July.

Middlebury, Vermont.—No frost in September; very unusual.

Lunenburg, Vermont.—September 7.—A very slight frost on boards, &c., this morning, nothing injured by it. 18th, a slight frost on the hills, hard on low lands; but everything so ripe that no harm was done.

Westfield, Mass.—No frost during the month that has done any damage, except in some very cold spots, where it here and there nipped the ends of the leaves of a squash vine.

Worcester, Mass.—September 8.—Frost this morning.

Columbia, Mass.—September 8, 9.—Frost in the morning.

Newbury, Mass.—September 8.—Quite a frost; only a few vine leaves were killed here; but a few miles distant some cornfields were whitened.

Colebrook, Conn.—September 8.—Slight frost.

Palmyra, N. Y.—September 30.—No frost yet.

Clinton, N. Y.—September 7.—First frost, very slight; only in the valley. 17th, rather a severe frost this morning, but not sufficient to injure vegetation.

Rochester, N. Y.—September 17.—Slight frost; killed cucumbers out of the city; little damage.

Gouverneur, N. Y.—September 17, 27.—Slight frost.

Nichols, N. Y.—September 16.—Frost on boards and fences.

South Trenton, N. Y.—September 20.—Very light frost this morning; 25th, frost barely visible; clipped pumpkin vines lightly. 30th, light frost.

South Hartford, N. Y.—No frost sufficient to injure vegetation during the month; on the morning a slight frost was noticed in very exposed localities. We usually have frost about the 20th of September.

Palermo, N. Y.—September 17.—A slight frost this morning; not enough to kill tender vegetation.

Theresa, N. Y.—September 17.—Light frost. 26th, a hard frost, though no white frost seen till after sunrise.

Progress, N. J.—September 30.—No frost yet.

Haddonfield, N. J.—No frost occurred during the month; on the morning of the 20th the mercury sank to 44°, and on the 26th to 42°.

Fleming, Penn.—September 1.—A light frost this morning, no damage done; 20th, frost this morning, not much damage done to vegetables.

Gramplan Hills, Penn.—September 1.—Light frost; no damage done.

Hillsborough, Ohio.—September 25.—It is said there was some frost.

Urbana, Ohio.—September 13.—Frost; could perceive no damage to the most tender plant, although boards were white with the frost. 19th, white frost; no injury to vegetation.

Kingston, Ohio.—September 13.—Frost this morning on fences, &c.

Bethel, Ohio.—September 25.—Very light frost just perceptible.

New Lisbon, Ohio.—September 1.—Light frost; no damage.

Pontiac, Michigan.—September 13.—Frost, injuring corn, vines, potatoes, and tobacco on low lands. 25th, frost on low lands.

Newcastle, Indiana.—September 19.—Light frost, the first since June; no injury. 24th, pretty heavy frost.

Spiceland, Indiana.—September 25.—Considerable frost.

Indianapolis, Indiana.—September 19 and 25.—Slight frost on these mornings but not sufficient to do any damage worth naming. These were the first frosts of the season.

Rensselaer, Indiana.—September 19.—Heavy white frost in the morning which nipped vines, beans, tomatoes, &c., and the blades of corn and sorghum, but did no material injury except to buckwheat. 25th and 30th, white frost in the morning.

Hoyleton, Illinois.—September 19.—Light frost last night.

Wyanet, Illinois.—September 19.—Heavy frost this morning; 24th, 25th little frost on low lands.

Hazel Dell, Illinois.—The first frosts of the season were on the 19th and 25th; but neither time sufficient to kill the most tender plant, except in very exposed situations.

Waverley, Illinois.—September 19.—First frost of the season, but not enough to do any injury.

Ottawa, Illinois.—September 18.—Slight frost, the first of the season.

Elmore, Illinois.—September 19.—Frost this morning, killed the tomato, cucumber and potato vines; injured the blades of the corn.

Winnebago, Illinois.—September 19.—Frost this morning.

Allenton, Missouri.—September 19.—Frost, barely observable on my premises, but injuring tobacco plants, cucumber and watermelon vines in a neighbor's adjacent field. 25th, white frost in a neighboring tobacco field.

Easton, Missouri.—September 18.—First frost of the season.

Canton, Missouri.—September 19.—First frost; ice formed; thermometer 31° at 5.30 a. m.; vines, corn, sorghum, &c., killed on low ground; no damage done on the uplands. 24th, light frost

Waupaca, Wisconsin.—September 19.—Slight frost, first of the season; thermometer at 4 a. m. 38° . 25th, heavy frost.

Embarrass, Wisconsin.—September 19.—Very hard frost this morning; killed late squashes, &c. 20th, light frost. 24th, hard frost this morning. 25th, very hard frost.

Green Bay, Wisconsin.—September 19.—First frost. 25th, frost this morning; ice an eighth of an inch thick.

Milwaukee, Wisconsin.—September 19.—Frost this morning.

Delavan, Wisconsin.—September 19.—First frost; thermometer at 6.30 a. m. 34°

Manitowoc, Wisconsin.—September 19.—Frost in some places back from the lake shore. 25th, cucumbers, beans, potatoes, and leaves of grape vines frozen.

Beaver Bay, Minnesota.—September 24, 25.—First frost; partly killed the leaves of cucumbers, tomatoes, and potatoes. 28th, frost.

New Ulm, Minnesota.—September 19.—First frost; damaged some garden

vegetables in the bottoms. 28th, in the morning found water in a pail frozen over with ice an eighth of an inch thick; thermometer 32° at 7 a. m.

St. Paul, Minnesota.—September 19.—First frost, high grounds generally escaping.

Fort Madison, Iowa.—September 19, 24.—First frosts; vegetation unhurt.

Independence, Iowa.—September 8.—Light frost, but it did no damage. 19th, frost killed the vines and the leaves on some of the trees, so that they commenced to fall, but did no damage to the sugar cane.—(*Deering.*)

Independence, Iowa.—September 19.—Very severe frost; ice a quarter of an inch thick at 7 a. m. 24th, heavy frost this morning.—(*Wheaton.*)

Iowa Falls, Iowa.—Thermometer 32° at sunrise on the 19th, 20th, 24th, 27th, and 28th.

Monticello, Iowa.—September 19.—First frost; it came too late to do any damage to crops, except perhaps some late pieces of sugar cane.

Waterloo, Iowa.—September 19.—Heavy frost; vegetation effectually checked. 20th, 22d, some frost.

Lyons, Iowa.—September 19.—White frost covering the ground, but doing little injury. 24th, frost, not very severe; the frosts were light, and did no injury, because all things are out of the way of frost.

Guttenberg, Iowa.—September 19, 20.—White frost on both these mornings. 24th, thermometer 40° at sunrise; no white frost. 28th, thermometer at sunrise 37° , a slight frost; ice formed less than a tenth of an inch thick on water in a tub.

Algeria, Iowa.—September 18.—Heavy frost. 24th, ice a quarter of an inch thick.

Iowa City, Iowa.—September 19.—First frost; it was confined to low places, and did little or no damage.

Dubuque, Iowa.—September 18, 19.—Light frost on both these mornings.

Onawa, Iowa.—September 18.—First frost of the season, very light. 24th, first hard frost; no further frost during the month.

Fort Riley, Kansas.—September 28.—Rain with large flakes of snow for about eight minutes, commencing at 8 a. m.

Richland, Nebraska.—September 18.—A little white frost in ravines; heavy white frost in Papillon and Bell creek and vicinities. 24th, heavy white frost

BI-MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

NOVEMBER AND DECEMBER,

1864.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1864.

BI-MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,

Washington, December, 1864.

This bi-monthly report is the last of this year. If I may be permitted to compare the reports of this year with those of the last year, by the many and warm approvals they have received, I cannot but believe that they exhibit a marked improvement. Those of the past year were the first issued by the department, and, as in all other new enterprises, much had to be learned of the best way to render them useful. With the aid of future experience, it is expected that the reports of the coming year will be not less marked by improvement.

Hereafter they will be published monthly. This change is called for by many persons upon whose judgments the Commissioner can confidently rely. Experience has shown that, from the very nature of the information imparted by these reports, being either chiefly statistical or based on statistics, they must be prepared within a few days before their publication, and hence there has not been realized that leisure in their preparation which it was thought would be found in the bi-monthly. In making this change it may not be necessary to issue circulars every month to correspondents, but only as frequently as the information regarding the crops may render necessary.

The leading article of this report is designed to show the climatic conditions of our country, which may be regarded as the very basis of American agriculture. It will be seen from it how superior is the quality of some of our leading agricultural productions, bidding defiance, by reason of it, to all competition. The cause of that superiority should be known to all—to the merchant and legislator, as well as to the farmer. Systems of agriculture must be controlled chiefly by climate. It will be seen that Oregon and California have essentially different climates, the influence of which is so marked in their crops of the present year. The climate of the Atlantic States is as different from both these as they are from each other. Products, such as the potato and the smaller cereals, which require a short season to best grow them, do better in the Oregon climate than in any other, whilst those demanding a longer season and greater heat, such as Indian corn, cotton, wool, and the sweet potato, are best adapted to the Atlantic climate. Products such as the grape and the cheaper wools do best in climates like that of California, where both heat and dryness are combined, and where cost of production is low. The knowledge of our climates,

and the *causes* making them, is essential to success. How much loss could have been avoided in California, if it had been known that protracted drought is incident to its climate, and how much can hereafter be avoided in western Texas, Kansas, and California, from a recollection of what these States have already suffered.

Whilst the cattle of California have perished by thousands, its sheep have not, and hence all the States just named will find their climate best adapted to wool-growing; and in this adaptation to the growth of every variety of wool our nation has the ability to become the greatest wool-manufacturing country of the earth. As the progress of this manufacture, now rapid, determines the kind of wool needed, the farmer can adapt his operations to this demand, thus securing to both the farmer and manufacturer stability in supply and demand. For the purpose of hastening this stability, I am now in correspondence with all of our woollen manufacturers, and the results of this correspondence will appear in these reports.

But, independent of these local interests in understanding the nature of our American climates, all persons being so absolutely dependent on heat and moisture should have some knowledge of the means established by the Creator for the diffusion of heat and the distribution of moisture. By the aid of the plates in this article, the attentive reader can acquire a general idea of these means. Details have been avoided as much as possible, that our farmers might be rather enticed to, than repelled from, a further knowledge in meteorology.

Another important article is that on the production of field seeds. The best skill of the farm has long been devoted to perfecting breeding animals, and its success exhibits the great good that is accomplished by a strict observance of the laws governing reproduction. The nature of these laws assures us that not less progress would be made by a like skill devoted to the production of field seeds. To preserve them from a deteriorating crossing, and a still more deteriorating want of proper cultivation, would seem to be so obvious a duty of the farmer, that the wonder is how such inattention to the improvement of field seeds is so prevalent. Greater attention has been given to the production of garden seeds, and to flowering plants, and their great variety and excellence clearly point to a like success in field seeds.

The French decimal system of weights and measures has so much commended itself to Great Britain, that it will probably be the received system of that country. Congress has adopted the decimal system of value in its coinage to guard the country against the evils of a mixture of foreign coins with our own. How much more important is it to have a uniform system of weights and measures, when every State is now exercising the power of establishing a system of its own. The article on this subject in this report is timely, and explains the general character of the French system.

The comparison presented by the article on the agricultural statistics of Ohio for 1863, between the mode of estimating the annual amount of our crops, adopted by this department, and that of taking them by township assessors, will commend to a still more favorable consideration the plan of this department.

The rapidity of its returns, its general correctness, and its small cost, cannot but meet with every favor. All local agencies to take a census of the crops, as by township assessors, are seen to be so slow in their operations that the farmers' crops are not only marketed, but consumed, before the amount of the crop can be made known, thus losing the chief purpose of taking such annual census, which is to make it known before they have passed from the farmer's hands. The article shows the greater reliability of the returns of this department. How far local agents could be forced to a more correct return by the enforcement of penalties upon them, and upon the persons refusing to give a statement of their products, is yet to be seen.

In this connection I again urge upon Congress to place at my disposal two thousand copies of that part of the census report which relates to agriculture, for distribution among the regular correspondents of the department. In no better hands could it be placed, and in none so deserving. Their valuable and gratuitous services have demanded from me, in every report, the most favorable recognition. Congress will see the importance of this recommendation, when it is remembered that the abridged census report does not give county returns, but that the volume now being published does.

The statistical tables, although not as important as in the last bi-monthly report, cannot but receive an attentive examination.

ISAAC NEWTON,

Commissioner.

AMERICAN COTTON, WOOL, AND TOBACCO.

The agricultural products, mentioned in the heading of this article, have been greatly affected by the rebellion. The first and third, before this war, were the chief of our exports. The second, heretofore, never attained to that magnitude which its utility deserved, but the rebellion has placed it in a position to assume its just rank in our agricultural productions. As an article of export, in its raw state, it cannot be expected to rank with cotton or tobacco, but exported as cloth and other manufacture, it will ultimately hold a no less important place than cotton.

It is proposed in this article to examine, first, the *extent* and *nature* of the *opposition* which these products will meet from the present efforts of other nations to supply the world, on account of the disturbing influences of the rebellion; and, second, to point out the *causes* which will destroy this opposition as soon as peace and industry once more resume their place in the United States.

1. *The extent and nature of the foreign productions of cotton, wool, and tobacco.*—The extent of the increase of foreign cotton can be seen only through its imports into Great Britain—the chief consumer of cotton in the world. The following table exhibits these imports during the first nine months of 1863 and 1864, and the countries from whence imported :

From—	1863.	1864.
United States.....pounds.....	4,627,728	13,086,416
Bahamas and Bermuda.....do.....	16,945,264	28,397,488
Mexico.....do.....	8,996,960	19,132,624
Brazil.....do.....	19,014,912	28,640,976
Turkey.....do.....	7,280,224	16,878,960
Egypt.....do.....	72,195,200	99,056,496
British East Indies.....do.....	242,497,024	300,175,680
China.....do.....	23,392,992	63,989,184
Other countries.....do.....	16,157,792	26,841,808
Total.....do.....	<u>411,108,096</u>	<u>596,199,632</u>

This exhibits an increase of 45 per cent. The imports from the second and third countries are chiefly of the cotton of the United States, and the nations that have most increased their production are Brazil, Egypt, British East Indies, and China.

The above table shows the imports into Great Britain for nine months only. To approximate to the annual production of the cotton of these nations, let us add *one-fourth* more for the remaining three months, which would raise the imports to Great Britain to 745,249,540 pounds. Let us add to this *one-fourth* more for imports of other nations, and the entire cotton crop of the world, antagonistical to American cotton, would be about 931,561,925 pounds. From this, however, should be deducted about 90,000,000 of pounds, which is probably the amount of cotton of the growth of the United States in the above table and estimates. This would leave about 841,561,925 pounds of foreign cotton *versus* American cotton.

According to the census returns of 1860 the cotton crop of the United States was then 2,079,230,800 pounds, or 1,237,668,875 pounds greater than the exports of all the cotton countries in 1864. The reader will see in these figures how very little of the usual cotton crop of the United States is yet supplied by other countries.

The *nature* of this opposition may be regarded in three aspects: the quality of this foreign cotton, the skill of the labor producing it, and the ability of that

labor to maintain its rivalry as a consumer of what England and other nations buying cotton may have to give in exchange for it. A few words only on these points will be given.

The *quality* of foreign cotton is inferior to that of the United States. For this cause it never can supersede ours, nor can it be made of equal quality by improvement in its cultivation or change of its varieties. From this general remark the cotton of Egypt may be excepted, but to what extent cannot yet be determined. Why foreign cotton cannot be grown of equal quality with our own will be shown under the second general division of this article. The London Times concedes that it cannot, and its political hostility to our Union seems to be based on visions of an alliance, offensive and defensive, with the cotton confederacy of the south, thus rendering it dependent on Great Britain, and giving to the latter the control of its cotton production.

Of the skill of the foreign labor engaged in growing foreign cotton nothing more need be said than that it is far behind that of our own country in intelligence, experience, and machinery. Egypt is now importing its implements from Great Britain and the United States.

The great disturbance in the monetary affairs of England and France, forcing, in the first of these nations, the bank-rate of interest to nine per cent., attests the drain of money on these nations for cotton. The labor of the cotton-producing nations will receive not much else but gold and silver; for its civilized wants of houses, of clothing, of food, of social comforts, and educational advantages are of the lowest order. As consumers of manufactures, it is almost infinitely below American labor. Between such a people and English manufacturers there can be no mutual exchange of their respective industry. With all its accumulated wealth, Great Britain cannot sustain an import of its textile material by payment in specie.

Referring to this drain of money, the London Economist, in August last, after showing the heavy increase of the purchase of cotton in 1864, says:

"The rude and new countries likely to demand bullion are Brazil, Egypt, and India. How much may be in bullion, and how much in goods, we do not know, but experience shows that a new trade with semi-barbarous nations always absorbs gold and silver. The precious metals are not only their legal standard of value, but their practical notions of riches. Unless each native in Egypt, or even in India, have yearly an increased hoard of them, he hardly fancies he is getting richer. In such countries, too, the trade in coin is rapidly superseding trade in barter; a great step in commercial civilization for them, but one which makes it necessary for them to draw gold and silver from us."

The same paper of December 3 says: "Many people are surprised at the revival of the export of gold to Alexandria, and of silver to India. But the real ground of surprise is that the revival has not taken place earlier," &c.

"An idea," it says, "prevails in some quarters that our exports to the east have grown to such a magnitude as to counterbalance the largely increased imports of cotton. But the figures of the Board of Trade tables do not countenance such an idea."

It then gives the exports and imports as follows:

EXPORTS.

	1862.	1863.	1864.
To Egypt.....	\$8, 196, 260	\$14, 838, 540	\$23, 390, 415
India	56, 754, 185	65, 109, 745	71, 725, 695
China.....	7, 971, 495	8, 859, 365	11, 542, 610
	<hr/>	<hr/>	<hr/>
	72, 911, 940	88, 807, 650	106, 658, 720
	<hr/>	<hr/>	<hr/>

IMPORTS.

	1862.	1863.	1864.
From Egypt.....	\$43, 584, 075	\$59, 228, 105	\$73, 963, 175
India.....	85, 479, 015	131, 859, 990	169, 359, 855
China.....	42, 079, 525	45, 817, 640	41, 179, 930
	<hr/>	<hr/>	<hr/>
	171, 142, 615	236, 905, 735	284, 502, 960
	72, 911, 940	88, 807, 650	106, 658, 720
Balance of trade	<hr/>	<hr/>	<hr/>
against Great Britain,	98, 230, 675	148, 098, 085	177, 844, 240
	<hr/> <hr/>	<hr/> <hr/>	<hr/> <hr/>

Great Britain *must* buy her cotton from *consuming* nations.

On this point we may here repeat the opinions expressed nearly a year ago in the bi-monthly report for January and February:

“But there is another reason why the United States must become the cotton-producer for the world. Commerce is the interchange of the surplus products of different countries. No extensive or lasting trade can be kept up on any other condition. The United States is the greatest consuming nation in the world, because the condition of its masses is superior to that of any other nation. At present, regardless of the struggle in which we are engaged, it is unwisely too much so. The excess of importations proves this, and the articles imported in excess are not those essential to life, but its dearest luxuries. And if with every patriotic motive to economy we thus recklessly consume, how will it be, and how has it been, in times of peace and high prosperity?”

“In exchange for cotton, the United States takes freely of the surplus products of those who buy from us. The nations now supplying Great Britain with cotton do not thus consume, and, as a consequence, it has to purchase it by the exportation of gold. This is the cause that now creates the high rates of interest in France and Great Britain, and the drain of our own gold. The East Indies, Egypt, Brazil, and China are not consumers after our fashion. Nor could they become such merely by possessing the cotton trade, but must advance to our position in civilization, for it is the wants and luxuries of civilization that make consumers.”

After these remarks on cotton, it will be unnecessary to dwell on the foreign competition our tobacco and wool have to meet from those of other countries. In the January and February number of this report it was shown that, in the scarcity of American tobacco, the English and other markets had resorted to the “*various cheap growths*” of the continent as substitutes, and that these would drive out the American tobacco, unless sold at the lowest rates for which it could be grown here. The quality, then, of these foreign growths is inferior to our own, but there seems to be less difference between them than between American and foreign cotton.

The production of wool has not yet assumed so great a magnitude as to make the United States a wool-exporting nation. When it was growing about *sixty* million pounds annually, it was consuming an equal amount of foreign wools in the form of foreign manufactured woollen cloths and yarns. Much of these foreign wools is inferior to that grown in the Atlantic States, and the question of the extent these cheaper wools should be admitted into the country is eliciting much investigation. The financial condition of the country is now such that these foreign woollen cloths and yarns cannot so readily compete with our own manufactures, because of the duties that must be laid upon them. Hence it is confidently believed, that there are the most encouraging incentives to a largely increased wool product. Our sheep have increased, in the past three years, from about fifteen to thirty millions, yielding about one hundred

million pounds of wool. At this time there is manufactured here about one hundred and fifty million pounds annually, so that our domestic wools may be greatly further increased. Here is a great field now open before the farmer to increase his flocks, and to produce such qualities of wool, by proper breeding, as the manufacturers most need. What their wants are will be shown, from time to time, in these reports.

This increase may go on until our own manufacturers shall not only supply home consumption, but export to foreign countries. American enterprise should successfully compete with that of Great Britain. The exports of woollens of England during the first nine months of 1864 are as follows :

		To United States.
Woollen and worsted yarn.....	pounds 25,022,061	
Woollen cloths, &c.....	yards 24,044,717	5,094,641
Flannels.....	" 6,652,377	
Blankets.....	" 5,556,475	
Blanketing and baizes.....	" 1,213,037	
Carpets, &c.....	" 4,889,868	1,507,594
Carpet rugs, &c.....	number 748,762	193,236
Worsted stuffs.....	yards 155,848,452	44,730,084

The tables do not show how much of woollen yarns, flannels, and blankets were exported to the United States, but they exhibit the fact that there is opened for American enterprise a large field for competition, and in proportion as it is occupied by our manufacturers will be the increased production of American wool. There should, then, be harmony and co-operation between the producers of wool and its consumers.

During the same nine months Great Britain imported wools to the amount of 148,140,746 pounds, of which it received from

British Possessions in South Africa.....	10,997,061 lbs.	\$3,757,620
British East Indies.....	10,548,339 "	1,911,005
Australia.....	84,919,645 "	34,814,035
Hanse Towns and other parts of Europe...	26,473,020 "	7,638,460
	<hr/> 132,938,065	<hr/> 48,121,120

The average value of all is $36\frac{1}{2}$ cents per pound, and of the lowest, from the Indies, 18 cents per pound, gold value.

From this table is seen the extent of the wool importations of Great Britain, and that the average prices are not so low but that the American wool-grower can compete with them. The low-priced India wool finds a rival in California wools, the price of which was, on November 1, for California fall clip $13\frac{1}{2}$ to 16 cents per pound at San Francisco. Of the more valuable kinds there is no country so well adapted to their production as the Atlantic States, for the same cause that gives superiority to our cotton and tobacco is favorable to wool also. That cause we now proceed at some length to point out.

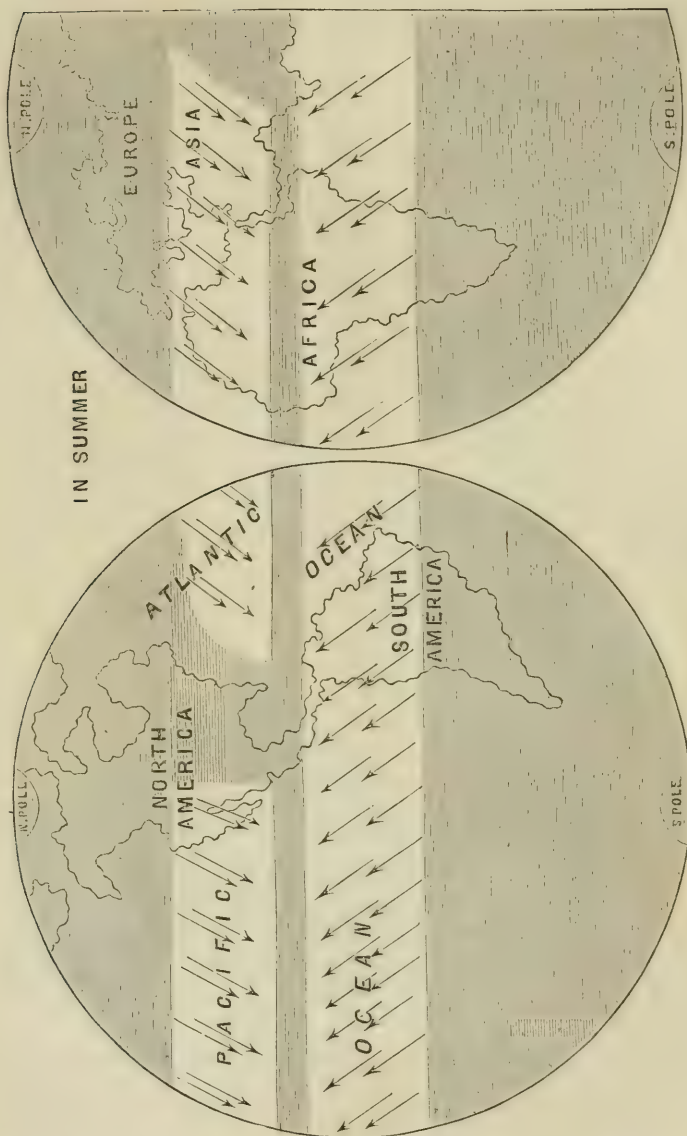
2. *The cause of the superiority of American cotton, tobacco, and wool.*—This will be found in the climate. All of our readers know that the climate of the Atlantic States differs much from that of the Pacific. The one has rain during the whole year, the other during the winter months only. The crops of the one receive showers during their entire growth; those of the other during their winter growth only. The wool of the one is sheared annually; of the other twice, that the growth of the winter may be separated from the short, dry, brittle growth made during the dry season. The San Francisco papers quote spring wool at 20 to 23 cents per pound, and fall wool at from 13 to 18 cents per pound. The climates of South Africa, the East Indies, Australia, and Brazil have their wet and dry seasons, and Egypt is nearly rainless. Here we

see that in their climate the Atlantic States are different from all these. A medium atmosphere, both in its heat and moisture, is the most favorable for the production of cotton, tobacco, and wool. And such is that of the Atlantic States. What is the cause of the difference in the climates of these States and that of California and the countries just named? The answer is interesting to all, but more particularly to those who wish to see clearly the future of our cotton, tobacco, and wool production. The answer requires some consideration of the machinery used in nature to distribute moisture, and we now place it before our readers in such way, that, aided by plates, we hope to convey to them clear perceptions of its character.

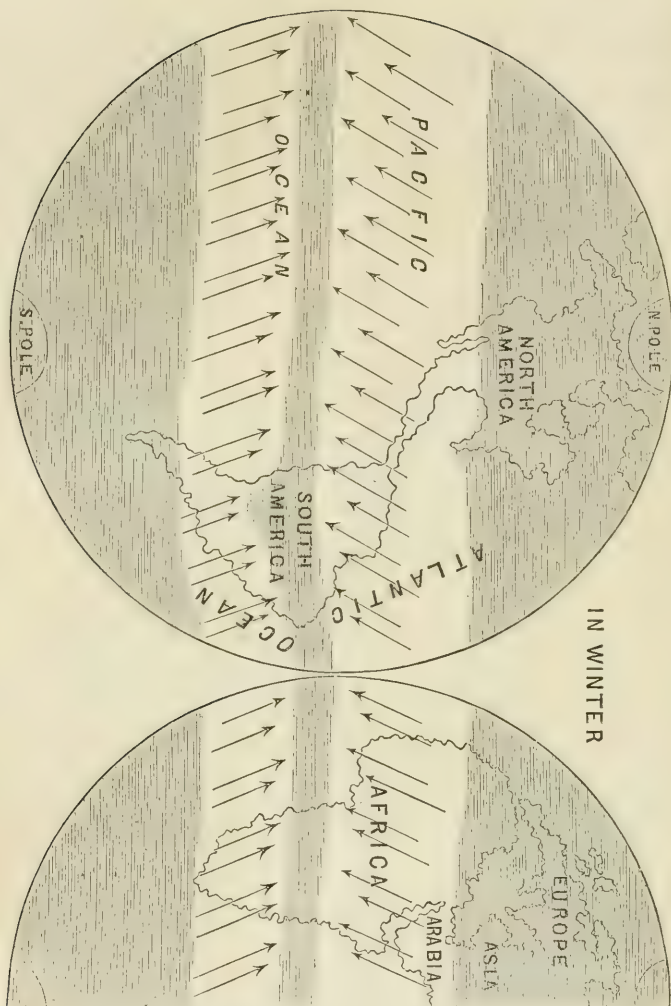
Let us suppose the sun to be directly above the equator, as it is on the 22d days of March and September. There is then this condition of the atmosphere over the world. Nearly under the sun is a belt of calm air, about five hundred miles in width, extending around the earth. On each side of it is a belt of dry air, also encircling the earth; the one north of the equator is about fourteen hundred miles wide, and that south of it from sixteen hundred to two thousand miles in width. The air in the first of these blows steadily and gently from the northeast towards the equator, and the air in the second from the southeast to the equator. North and south of the belts of dry winds, and extending to the poles, there prevail variable winds and showers.

The belt immediately under the sun gives heavy rains, and is called the Belt of Calms, or the Rainy Belt. We shall refer to it by the latter name. The dry belts on either side of it are known as the Trade Winds. It was these which wafted Columbus to the American continent. The atmosphere beyond these and extending to the poles is called the Variable or Extra-tropical belts.

This machinery moves with the sun, and when it has reached its furthest northern point, the tropic of Cancer, at about $23\frac{1}{2}$ degrees of north latitude, and on the 21st day of June, the rainy belt is nearly at that point, and the northern limit of the trade-winds is at the 39th degree of latitude—that is, the latitude of Washington, Cincinnati, Alton, and Independence, and within three degrees of the northern boundary line of California. The following climatic map exhibits the geographical position of these respective belts on the 21st day of June.



As the sun recedes, this atmospherical machinery follows it, and when it has reached its further southern limit, the tropic of Capricorn, at $23\frac{1}{2}$ degrees of south latitude, it is as seen in the following map, representing the northern winter and southern summer.



These maps are taken from Butler's *Philosophy of the Weather*, one of the most practical books on meteorology, and one that should be studied by every farmer desiring to learn the character of that atmosphere which rules the productiveness of the earth.

The arrows in the trade-winds indicate the direction of the wind in them.

Having stated thus briefly the machinery used for the distribution of moisture, we proceed to show its action.

The vast heat of the sun when it is directly overhead causes the atmosphere beneath it to be intensely heated, and by this heat it is vastly expanded; becoming lighter by this expansion, it ascends upward, causing a vacuum, which is filled by the cooler air on each side of this heated and ascending atmosphere. This movement creates other vacuums, which as they are filled causes a general movement of the air from the poles to the equator. This moving of the atmosphere from cooler to more heated surfaces causes it to take up and retain vast

quantities of evaporated moisture, and the electrical condition of the air both aids its motion and its capacity to retain this moisture.

Two opinions are advanced as to the course taken by the ascending atmosphere. One maintains that the air passing over the northern hemisphere returns directly back to the north, the other that the meeting columns from the north and south pass through each other in strata, best represented by passing the fingers of one hand through the other. The latter opinion we regard as correct; and if so, then the vast evaporations of the southern hemisphere, which is chiefly water, supply the northern hemisphere, which is principally land, with the rain that falls upon it.

This upper ascending current is called the Upper or Counter trade-winds. In passing through each other these strata produce a calm, which also may be represented by passing the fingers of one hand through the other, the space between the palms of the hand representing this calm, which is the rainy belt first described. The calm produces condensation, and hence the great amount of rain which falls from this belt.

This counter or upper trade in passing to the north goes into a cooler atmosphere, and having lost a portion of its heat, it becomes heavier and its moisture more condensed. At the fifteenth degree of latitude, beyond the rainy belt, it begins to descend to the earth, producing the showers of the extra-tropical belt. The cause of no rain falling in the trade-wind belts is here seen. These winds cannot part with what moisture they have, because they are continually expanding from their increasing heat as they near the equator, and the moisture of the counter trade-wind is not condensed until it arrives at the northern limit of the trade-wind.

To change water into vapor or steam requires nine hundred and seventy degrees of latent heat. This is an enormous quantity, and we see the wonderful provision nature has created for the purpose of absorbing the great heat of the equator. When it has become latent in changing water into vapor, it is insensible to the touch or to any test by the thermometer. When the vapor is carried into higher and more northern places, it parts with this latent heat by being condensed into water. The heat thus liberated warms the surrounding atmosphere, and thus other portions of the vapor are kept from condensing until it passes further north into colder air. Here a portion of it is condensed into rain. Again latent heat is given out to warm this part of the atmosphere. Thus portions of the vapor absorbed at the equator are carried to the poles, and the enormous heat of the equator taken up and distributed to the very poles. No law of nature is more beneficent or more wonderful than that of latent heat when thus performing its office as the chief agent in the distribution of moisture. Thus are the showers of the extra-tropical belt formed. It is these showers that sustain the rivers, and "all the rivers run into the sea, yet the sea is not full," for its evaporations equal the water poured into it by the rivers. "Note the place whence the rivers come; hither they return again."

When the upper or counter trade has thus passed from the equator to the poles, it has lost all of the moisture and heat it acquired at the equator. It descends at every place over the extra-tropical region, and passing along the surface of the earth, forms the northwest wind—that cool, dry, and absorbing wind that constitutes the dry winds of the trade-wind belt.

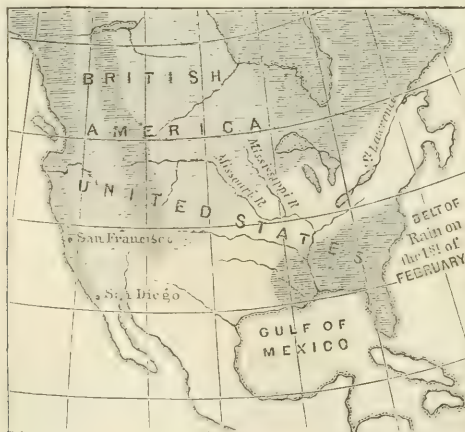
If the earth did not revolve upon its axis, the upper or counter trade would pass from the equator directly north, and when it had descended to the earth, it would return to the equator by a direct south course. But the diurnal revolution of the earth turns the upper or counter trade in an eastern direction, causing it to become the southwest wind in the extra tropical regions, and the returning or trade wind to blow from the northeast.

If we follow this machinery in its passage from the tropic of Capricorn to that of Cancer and back, it will be seen that the central or rainy belt furnishes

the tropical countries with the heavy rains that fall over them. Our readers are most familiar with them as the rains of Central America. They fall as this machinery is carried northward with the sun, and as it returns to the south. Hence, except at its extreme northern and southern limits, this rainy belt annually passes twice over the same country. As the sun recedes south from the tropic of Cancer the extra tropical-region becomes larger, for it moves south with the sun. When the latter has reached the tropic of Capricorn, the line between the trade-wind belt and the extra-tropical is about the thirty-second degree of latitude. The rainy belt, when it has reached its furthest northern point, extends only to the twenty-eighth degree. Hence no rain ever falls between the twenty-eighth and thirty-second degrees of latitude. These portions of the world, both of north and south latitude, are always dry. The Peruvian guano islands lie in one of them, and hence the vast accumulations of this rich manure, for a few rains would soon cause its decay.

This rainless belt of land commences its eastern limit at the western settlements of Texas, thence passes through the northern half of Chihuahua, Sonora, and Lower California. Mr. Bartlett says of it: "Here shrubs and trees disappear, except the thorny chapparal of the deserts; the watercourses all cease, nor does any stream intervene until the Rio Grande is reached. This great desert region extends over a district embracing sixteen degrees of longitude, or about a thousand miles, and is wholly unfit for agriculture. It is a desolate, barren waste, which can never be rendered useful for man or beast, save for a public highway."

Turning to the first plate, it will be seen that on the eastern part of North America and of Asia, the rainy belt and the extra-tropical region are united. The light-colored belt of the northern trade-wind is in these places darkened, indicating that showers cover them whilst all other parts under the trade-winds are dry. Why is this? The answer, as given by Mr. Butler, is, that the mountains of Central America being higher than the rainy belt, are, by the rotation of the earth eastward, as well as by their greater height, forced against the rainy belt which moves westward, thus acting as a dam against it. There results an accumulation of this aerial belt; and as the mountains run from the southeast to the northwest, the accumulated belt flows towards the northwest, until, mingling with the upper or counter trade, it follows its course, curving round to the northeast. This overflow extends northwards as the sun advances in the same direction. The following map shows the portion of the Atlantic States covered by it about the first of February, reaching nearly as far north as the mouth of the Ohio river.



In April it has extended westward, and its northern line passes near St. Louis, and, running in a northeast direction, touches Lake Erie. The following map exhibits its position and extent:



This overflowing rainy belt finds its usual greatest western extension in July through the middle portions of Texas, Kansas and Nebraska Territory, curving east over a part of Lake Superior and the Canadas. Here, then, we find the source of the summer showers which so beneficially aid our agricultural products, especially cotton and tobacco. It makes the United States the great corn-producing country of the world, and gives a moisture and a fresh growth of grass which so beneficially affects the growth and quality of wools. Were it not for this overflow of the rainy belt, the dry trade-winds would cover all of the United States south of the 39th degree of latitude, and thus it would become, as in California and New Mexico, impossible to grow these products, except where they could be irrigated. And having no mountains high enough for their tops to be covered with snow in summer, such irrigation could not be had. The influence which the mountains of Central America exert upon the climate of Great Britain, by turning the Gulf Stream to its shores, has been a theme of much remark in literary discourses, and we see in this exposition of the cause of our great agricultural superiority their beneficent influence upon our climate. Truly, indeed, was the world made by an All-wise Architect!

The attentive reader will have perceived that the northern half of the American continent has *five* distinct climates. The last map exhibits them by the *dotted lines and figures*.

The *first* extends from the equator to the middle of Lower California. It is strictly tropical, being watered wholly by the rainy belt. The *second* is a narrow strip, about four degrees in width, and in length from the western settlements of Texas to the Pacific ocean. It is the rainless country, as above described. The *third* reaches from about the 32d degree of latitude to the 39th degree, and extends east and west from the middle of Kansas to the Pacific ocean. It is that portion that is alternately covered by the dry trade-wind and the extra-tropical region of showers, and variable winds. The *fourth* lies north of the 39th degree of latitude and extends from the Atlantic to the Pacific oceans. It is always covered by the extra-tropical showers. The *fifth* is that part of the Atlantic States east of the middle of Kansas, under the overflowing rainy belt. A sixth climate might be added—that which lies on the ocean about three hundred miles from the Atlantic coast, made by the Gulf Stream.

We have thus, at some length, placed before our readers the different climates of our country, and we are certain that in this exposition of the *cause* which

must ever make the agriculture of the Atlantic States the greatest in the world, placing its leading products beyond the reach of rivalry, our farmers will give us their cordial approbation, which so often they have bestowed on these reports.

But in this peculiar climate of the Atlantic States they will see also the cause of our successful production of Indian corn, a crop which for 1863, in the loyal States alone, was worth \$278,089,609, and which in 1864, in amount, was 530,581,403 bushels. Elsewhere it must be raised by irrigation, for in all other countries having sufficient heat, a dry and wet season prevail. And whilst admiring this climatic blessing, what American but feels still more inflexibly determined that a country so blessed shall never be paralyzed by disunited and warring governments?

THE PRODUCTION OF FIELD SEEDS.

The Department of Agriculture is constantly distributing seeds, and under the action of the Patent Office in past years large numbers have been sent to every portion of the country. But how very few of these have proved a valuable addition. The causes of this failure should be investigated, for they are obvious to all who have given the subject an examination. It is the object of this article to make such investigation, and to prescribe a mode of producing seeds which will not only sustain those common to our country from deterioration, but render useful the new ones distributed by this Department.

1. *The causes of deterioration.*—Climate, soil, and cultivation are the chief agencies in the production of vegetation. The first, regarded as tropical, temperate, and arctic have given plants and forms of vegetation peculiar to themselves. The sugar cane belongs to the tropics, and the potato to the temperate climates; the one flourishes best in the warmest portions of the tropics, the other in the cooler parts of the temperate regions. Advancing from the first locality northwards, the sugar cane gradually deteriorates, and from the second locality southwards, the potato is governed by the same law. At certain points these plants cease to be remunerating crops, and at certain other points they will not grow—no acclimation will cause them to do so. When a plant can barely be made a profitable crop, the seed from it so rapidly degenerates that the crop from it is worthless; but seed brought from a latitude which best suits the plant will there produce a paying crop. These laws of climate cannot be changed.

Soil has similar laws. The sweet potato is grown best in a sandy, dry soil, with a long growing season. The Irish potato delights in a loamy soil, and a short growing season. To a certain extent, plants can be grown in soils not naturally adapted to them, by the ameliorating influences of cultivation.

From this brief statement we see that climate and soil have their conditions, and that cultivation can modify, but not overcome them.

Again, cultivation, especially when given with a strict observance to those laws of vegetable production that govern the improvement of each plant, can advance the plant much beyond its condition, as seen in its natural state and natural climate and soil. The potato is one of the best known instances of the wonderful power of cultivation upon the natural state of a plant.

Here, then, we have three agencies constantly operating on our farm plants, and as these are observed or disregarded will be their advance or deterioration. For instance, the wheats of Great Britain have a long season in which to grow and mature, and a temperature of climate that is mild and regular compared with that of the United States. Its climate is regularly moist, whilst ours is on the extremes of dry and wet. These differences unfit the wheats brought from Great Britain for our climate, unless by cultivation the maturity of the plants is hastened. Last year the Department distributed one of the best English

spring wheats, but it would not mature here on account of the shortness of our wheat season. The Chili wheat, when sown here in the fall, cannot endure the freezing of our winter any better than our oats. Now, however excellent such wheats are in the latitudes best adapted to them, yet when brought to a different latitude they must first be acclimated by such cultivation as will, as nearly as possible, make up for the differences of climate. Thus the English spring wheat should have been early sown in a sheltered bed, sufficiently manured to hasten its maturity. The Chili wheat must be protected from severe freezing, or first sown in a southern State, and gradually extended north. But then, the general law is, that when at last it is acclimated, it has lost its superiority, and is no better than the common wheats of the country. But then, again, there are foreign wheats grown in climates more like our own than the English and Chilean wheats mentioned, as the Mediterranean, and such may become valuable to our farmers.

From these remarks it will be seen that a knowledge of the character of the seed is necessary, and that thought and care are essential in its reproduction here. The general complaint of the running out of our wheats points to the fact that our native seeds are so reproduced as to cause their degeneracy instead of their improvement. This can be done in one way only—by a disregard of some or of all of the laws referred to.

The customary manner of procuring seed wheat, and of all other of the small cereals, is to take it from the general crop, and clean it as best can be done by a wind-mill. Such seed contains the best grains grown, many that are imperfect, and the seeds of diseases, as of smut. Such imperfections, joined to ordinary or inferior culture, must result in depreciation. Every stock-grower would admit such result among his stock, if no better plan of selecting his breeding animals was adopted. He, on the contrary, carefully chooses the male and female parents, weighing their perfections and faults, and so adapting one parent to the other, that a like fault in both shall not exist. These animals, from their first of life, have been well fed, cleaned, and housed. Everything essential to their full and complete development has been observed. The laws of descent have been carefully studied. Now the laws governing vegetable propagation are the same as those of animal descent. But the one is almost universally overlooked, whilst the other is admitted and observed. If there is any exception, it is in Indian corn. This has been improved, both in quality and variety, attributable to the fact that, whether a farmer selects his seed corn from the crib, or goes into the field in autumn and chooses the earliest and most perfectly ripened ears, he selects the best, and rejects all of inferior quality. Now a selection of the best is still more important in the small cereals, because from its crowded growth there are many more partially grown grains. But even the best grown, from this crowded state and other causes, presently to be mentioned, are no better than the seed from which they sprung. Hence there is no advance. There are, then, two things to be done—to select the best, and improve that by cultivation.

Every one has heard of the celebrated barrel wheat, grown by a thinking farmer. It acquired so extensive a reputation that his crop was sold for seed alone. Ultimately this variety was found to be produced by selection only. The earlier ripened and larger grains were separated from the rest by gently striking the sheaf across the open head of a barrel. Their weight and earlier maturity loosened them sooner from the enveloping chaff. As these better grains were separated from the inferior, the result was a greater amount of good grains and fewer inferior. It was but an instance of the result of the law that "like begets like"—that law whose observance has produced the Durham, the Virginia racer, the South Down and Spanish Merino, and the Mager hog. Let us but regard its influence as all-powerful in the production of our cereals by a like

care in the production of their seeds, and instead of their running out, there will be a running up.

2. *How seeds may be improved.*—Having seen that deterioration arises from want of selection and defective cultivation, we proceed to point to a method by which these evils may be obviated. Cultivation and selection may go together, and, therefore, will be considered together.

The law of progress in vegetable life being the same as in animal life, the *first* step towards improvement is such selection of varieties as is best suited to each person's soil, and to that climate in which he resides. The *second* step is to prepare the soil to grow a good plant, just as the breeder of stock prepares shelter and food for his breeding animals and their offspring in winter and rich pastures in summer. The *third* one is good cultivation, for by it only can the food of the soil be given to the growing plant. How, then, shall these seeds be so grown in compliance with these essential requisites?

Instead of depending on the general crop for seed, as is now done in wheat, rye, barley, oats, and buckwheat, every farmer should grow his seed separately. The best of his soil should be selected, and made rich with green or barnyard manure, as most required. If it is too cold, or if the seed requires to be hastened in its ripening, it should be warmed and enriched by barnyard manure. If it should be deepened, then clover on which plaster has been sown should be turned under deeply. If the seed about to be sown has been grown in a climate where the season is longer, the time of sowing should be very early, and that it may be thoroughly cultivated, it should be sown in wide drills.

If the seed has been sown in the fall, as the winter varieties are, then the plants should be well hoed in the spring, and as often as is necessary to keep them free of weeds and the soil well pulverized. So much for the mode of *growing* seed. The *selection* may best be made in this way.

When the plants have headed, the crop should be cleaned of cheat, cockle, smut, &c., by cutting out the plants and shoots producing them. All weak stools or sprouts should be cut out also, for these cannot produce perfect grains, but take from the nourishment due to the stronger ones. What would thus be grown would be so perfect as to need no further selection. The threshing should be done separately from other grain, and by the flail.

There is no more reason why our wheats should deteriorate than our Indian corn. Yet the one degenerates whilst the other improves. There can be but one cause for this, and that we have pointed out—improper growing of the seed. It is in the ability of every farmer to correct the evil. But evils, like misfortunes, crowd together, for with these, too, like begets like. The loss by freezing *in* and *out*, noticed in our last report, is aggravated by the weakness of many of the plants, occasioned by the defective seed sown. Every farmer has observed the weakness of the plants of Indian corn, when the seed was small, or has been prematurely taken away by moles or birds. In these cases he could readily see it, but in the smaller cereals he cannot from their crowded condition. But our judgment informs us of the multiplied losses from sowing imperfectly grown seed, and it as clearly points out the necessity of correcting the evil. We have but to overcome a single habit—that of taking our seeds from the general crop. This habit has been of long standing, and has become a second nature. But from the progress now making in our agriculture, we hopefully anticipate its eradication.

Since the above was written we have received a communication from Mr. Haden, of Fayette county, Kentucky, on the subject of smut in wheat. This communication will be given hereafter, when a notice is made of this disease. It led us to read of the disease called "bunt" in England, where greater examination has been given to it than here, and the conclusion of the article on it in the Cyclopædia of Agriculture thus recommends the plan above given by Pro-

fessor Henslow, in his report on the diseases of wheat, to the Royal Agricultural Society.

"From a variety of considerations, it has always appeared strange to me that practical agriculturists are accustomed to pay so little attention to the raising of pure seed crops. There may be a reason which I do not properly appreciate, that would render it inexpedient to cultivate a seed crop; but I should have thought it was always worth while for every farmer to set aside some portion of ground to be more carefully tended than the rest, for the purpose of securing good and clean seed. Among other reasons for such a practice, he would then be able to weed his crop from every plant infected with bunt or smut, before the fungi ripened."

WEIGHTS AND MEASURES.

During the last session of Congress a standing committee was appointed on weights and measures, and by that act the country was assured that Congress would soon exercise its constitutional authority over this subject. Heretofore we have pointed out the utter perplexity that exists here to determine what the English *quarter* is, and the endless confusion that exists in that nation from every county and commercial city having its own weights and measures.

Before us are some letters from correspondents asking the aid of this Department to correct the evil they experience of buying agricultural products in a State having its own standard in weights and measures, and having to sell them in another State having a different standard. We can aid in this important matter but in one way—by asking Congress to arrest, at the earliest moment, the evil that conflicting State legislation, on this subject, is bringing on the country, and which will increase, until here, as in Great Britain, its very magnitude will serve to perpetuate it.

Mr. R. E. Johnson, of Baltimore, has recently published an interesting article on the question of adopting the French decimal standard. We cannot better serve our correspondents than by its republication, and, in so doing, we add some remarks of our own, suggested by his article.

The names given to the weights and measures by the French may appear objectionable to many, because it will be thought they are so unlike the names already given to them. But it must be remembered that the object is to have an *international* system of weights, measures, and values, so that when the price of a commodity is stated in a foreign country, it is known here, because of this uniform system among all commercial nations. We cannot, therefore, expect that our own common names shall be retained. And the French have very wisely adopted names that are not in themselves French, but are derived from the Greek and Latin languages—that common storehouse of names to new things. We have thousands of words, now familiar, drawn from this source. Thus the word *petroleum* is derived from the Greek words, *petra*, a rock, and *elaion*, oil, meaning rock oil. So *anthracite* is from the Greek *anthrakitis* stone coal. A little familiarity with the names given by the French, in their system of weights and measures, will make them as much domesticated as our word *dime*, which comes from the Latin *decimus*, the tenth.

A particular notice of these names, as given by the French, will not be useless. There are *four* measures—of *length*, of *capacity*, of *weight*, and of *surface*. There must be a *unit* or starting-point for each of these, and this unit must be increased or diminished according to some established number. In our coins we have made this number *ten*. The dime is the tenth of a dollar. Hence it is called the decimal system. The French have adopted this in their system of weights and measures, as we certainly should, that it may be uniform with our

coinage. This tenth is natural to our numerals, from one to ten being the basis and these numerals are common to the world.

In the French system, the *unit*, in measures of *length*, is called *meter*, from the Greek word *metron*, a measure. Thus we have our gas-meters, or measurers of the gas which passes from the main pipes to the burners. So we see that the word is already American. This unit is to be decimally increased or decreased. The names showing the *increase*, the French system derives from the Greek, and those showing the *decrease*, from the Latin. Ten-fold this meter is called *decameter*, from the Greek word *deka*, ten, and *metron*, measure, as above stated. The hundred-fold is called *hectometer*, from the Greek word *hekatón*, a hundred. The thousand-fold is called *kilometer*, from the Greek word *kilion*, a thousand.

The tenth decrease of this unit, or meter, is named *decimeter*, from the Latin word *decem*, ten. The hundredth decrease is called *centimeter*, from the Latin word *centum*, a hundred, as our words per centum, that is, by the hundred. The thousandth decrease is named *millimeter*, from the Latin word *mille*, a thousand.

The *unit* of the measure of *capacity* is called by the French *liter*, from the Greek word *litra*, a pound. The ten, hundred, and thousand fold *increase* is named as above—*decaliter*, *hectoliter*, and *kiloliter*. The *decrease*, in like manner, is called *deciliter*, *centiliter*, *milliliter*.

The *unit* of the measure of *weight* is called *gram*, from the Greek word *gramma*, a small Grecian weight. Then, as above, we have *decagram*, *hectogram*, and *kilogram*. Also *decigram*, *centigram*, and *milligram*.

The *unit* of the measure of *surface* is called *are*, from the Latin *area*, a broad piece of level land. Then, again, as above, we have *decare*, *hectare*, and *kiliare*; also *deciare*, *centiare*, and *milliare*.

The *meter* is $39\frac{37}{100}$ inches; the *liter*, $1\frac{3}{4}$ pints; the *gram* $15\frac{43}{100}$ troy grains; and the *are*, 1,076 feet.

We commend this system to the proper committee in Congress, with the hope that it will not permit the present session to pass by without making such report as may be the basis of action for the next Congress.

The following is the article of Mr. Johnson:

THE DECIMAL SYSTEM OF WEIGHTS AND MEASURES.

Great Britain and the United States can secure to the world a universal decimal system of weights and measures of extreme simplicity. Great Britain has taken the first step by legalizing the French system of weights and measures, and this country should aid to the uttermost of her ability in conferring this great boon upon humanity. The subject was introduced in Congress at the last session, but no definite action was taken, and if the attention of public men is not persistently directed to the project, it will be neglected, and even the noble spirits in England who have worked so steadfastly in this cause may become disheartened at their slow progress; for the mere legalization of the system will be futile, unless succeeded by more efficient legislation. The legalizing of the system by us would encourage its advocates in England, and aid them in procuring efficient legislation. It is hoped, however, that our government will not rest satisfied with doing so little.

As much ignorance prevails upon this subject, a slight sketch of the system may not be out of place. The unit of the system is the *meter*, which is the forty millionth part of the meridian of the earth, and is equal to about $39\frac{1}{4}$ inches. From this are derived all the weights and measures, and also the external relations of the coins. Quantities above unity have been named by prefixing Greek numbers, quantities below unity by Latin numbers. The tenfold quantity is indicated by *deka*, the hundred-fold by *hekto*, and the thousand-fold by *kilo*, tenth part by *deci*, the hundredth by *centi*, and the thousandth by *milli*. The unit

of superficial measure is 10 meters long by 10 meters wide, or, in other words, is a square *decimeter*, and is called *are*. The *hectare* (100 *ares*) is equal to about $2\frac{1}{4}$ acres.

The measure of capacity is the *liter*, which is the cube of the *decimeter*, or tenth of a meter.

The unit of weight is the *gram*, which is the weight of the volume of water contained in the cube of a *centimeter* when the water is at its greatest density.

The long names of the French system constitute an objection which can be easily avoided. They can be abbreviated so that the units will be of one syllable, and the derivatives of two, and yet bearing sufficient resemblance to the French terms to be easily identified. *Meter*, *liter*, and *are* should be *met*, *lit*, and *ar*. *Deka*, *hekto*, and *kilo* should be *dek*, *hek*, and *kil*. *Deci*, *centi*, and *milli* should be *des*, *cen*, and *mil*. Then *hektometer* (100 meters) would be *hekmet*, *centimeter* ($\frac{1}{100}$ of a meter) would be *cenmet*. *Hectoliter*, (100 liters) would be *hekkit*, and *deciliter* ($\frac{1}{10}$ of a liter) would be *decilit*. So desirable do I deem this nomenclature, partly for convenience, but chiefly to impress it upon the public mind, that it will be used throughout the rest of this article.

Mr. Fellowes, of Wolverhampton, England, has proposed a nomenclature which would secure short names, but these names would be different in each language, and would be entirely different from the French names. It is very desirable to have the names in all languages so nearly alike, that they can be recognized without hesitation, and the abbreviated nomenclature is the only one which will secure this consideration, together with short names.

As the metric system is entirely decimal, no reduction is required, and there is substantially but one measure of length, the *met*, one of the area, the *ar*, one of capacity or cubic measure, the *lit*, and one of weight, the *gram*. It is not necessary to point out the irregularities and inconveniences of our present system. How many of the readers of this article can recite our tables of weights and measures without making several mistakes? How many can tell without calculating how many feet are in a mile, or how many cubic inches in a gallon?

It requires but little study to understand the meaning of the terms *met*, *ar*, *lit*, and *gram*; and but little mental exertion to remember that *dek*, *hek*, *kil*, *des*, *cen*, and *mil* indicate respectively 10, 100, 1,000, $\frac{1}{10}$, $\frac{1}{100}$, $\frac{1}{1000}$. When these simple facts are learned the metric system is, for all practical purposes, mastered.

The reader must not suppose that it is necessary to use all these terms. We can call 40 dollars either 4 eagles, 400 dimes, or 40,000 mills, but we seldom use these terms. In France *dekar* and *desar* are seldom or never used, although as correct as *hektar* and *centar*. For all ordinary purposes the following terms would probably be found sufficient: the *met*, *cenmet*, and *kilmet*, (about $\frac{1}{6}$ of a mile,) the *ar* and *hektar*, the *lit* (about $1\frac{1}{3}$ pint,) and *killet* (about 20 gallons,) the *gram* (nearly 16 grains troy,) and *kilgram* (about $2\frac{2}{3}$ lbs. troy.)

Some of the advocates of the metric system have been perplexed by objections urged by advocates of what is loosely called the binary system, but properly called the sexdecimal system. A sexdecimal system of notation would be preferable to the decimal system; but with the latter system exclusively in use throughout the civilized world, it is useless to talk of establishing another, and the adoption of a sexdecimal system of weights and measures, with the present system of notation, would not avoid the necessity of reduction, as the metric system does; besides, it would be commencing anew instead of completing what France has begun. Since 1840 even the names of the old weights and measures have been interdicted in France.

Two anomalies exist in France, which it is hoped will not be introduced into other countries. Apothecaries' weight swerves from the system, and *stere* is sometimes used instead of *killet*. As *stere* and *killet* are each precisely equal to a cubic *met*, the use of the former term mars the simplicity of the system.

The metric system is used not only in France and her colonies, but several other European nations have adopted it. It is legally established throughout Italy, with the exception of Rome and Venice. Two errors have been committed in Europe, which it is hoped will be rectified and never repeated. In one instance a decimal system has been adopted, founded upon the metric system, but not identical with it, and in some instances the names have been, and perhaps still are, entirely unlike the French names. It cannot be too firmly impressed upon the public mind that, in order to reap the full benefit of a universal decimal system, there should be, in effect, but one measure of length, one of area, one of capacity, and but one weight, and that the corresponding names in all languages should be nearly alike.

How can this system be made universal? Every nation should make it the government standard. The *gram* should be the postal weight throughout the world. Legislation should make the metric weights and measures much cheaper than the old ones. Special privileges should be granted to those using the metric system exclusively. It should be made a subject of world-wide concern, and nations should officially inform others of their respective progress in introducing the system. Other nations and States should follow the example of Connecticut, and introduce the system into their schools. Let the steps taken be energetic and efficient, for while men buy and sell by different systems, inconvenience will be experienced; but when the old system is abolished, the inconvenience will cease.

In conclusion, I appeal to the reader not to content himself with a simple assent to the spirit of this article, but to use his influence, be it much or little, towards the success of this cause. Unfortunately, as it appeals neither to the selfishness, the passions, nor the prejudices of men, it can exert no "lobby influence," but must depend for success exclusively upon the enlightenment of the public and the wisdom of our legislators. Let no man be discouraged should the progress of the cause be slow. It may require time and perseverance to overcome the force of habit, and the indifference and prejudice of the narrow-minded; but with untiring exertion on the part of its friends, the project will eventually succeed; and, although its present advocates may not live to see the fruition of their hopes, they can enjoy the consciousness of aiding in conferring upon the world a blessing, the importance of which will be fully appreciated and acknowledged only when the work is completed.

R. E. JOHNSON.

BALTIMORE, *December*, 1864.

AGRICULTURAL STATISTICS.

Ohio Statistics for 1863.

From time to time we have made known the details of the plan by which this Department estimated the amount of the crops and farm stock. It is simple, and does not go into the details of each farmer's annual production, for if it did, it would fail in its very purpose, which is, to estimate the crops before they pass from the hands of the producer. After giving this plan a year's trial, and for years having examined the returns of those States which took them by their township assessors, the declaration was made in one of the reports of the Department that greater reliance was to be given to the estimates of the Department than to most of the returns of the States.

The State of Ohio had, however, given longer and better attention to its State statistics, and to them a greater confidence was given than to those of other States. The annual report of its able Commissioner of Statistics was one of the

richest statistical feasts set before the country, for it exhibited the varying and progressive industry of one of the greatest and most advancing States of the Union.

We have had placed before us the returns from Ohio, of its cereal crops for 1863, just one year and two months after our estimates of them had been published. We regard these returns as unreliable, and for the purpose of contrasting the general correctness of the estimates of this Department with them, we have prepared the following tables, showing the returns of Ohio for 1862 and 1863, and the estimates of this department for 1863:

Ohio statistics for 1862 and 1863.

	1862. Ohio returns.	1863. Ohio returns.	1863. Dep't estimates.
Wheat.....bushels..	29, 883, 651	20, 168, 595	28, 742, 963
Rye.....do....	823, 092	304, 443	863, 232
Barley.....do....	1, 221, 170	1, 304, 884	1, 399, 086
Buckwheat.....do....	173, 657	202, 457	827, 364
Corn.....do....	63, 014, 314	54, 079, 817	57, 433, 802
Oats.....do....	11, 633, 058	11, 154, 845	12, 024, 028
Tobacco.....pounds..	*25, 000, 000	36, 918, 793	28, 081, 869
Potatoes.....bushels..	5, 128, 756	4, 343, 053	4, 103, 005
Hay.....tons.....	2, 073, 398	1, 074, 848	1, 347, 710
Horses.....number..	727, 245	662, 591	589, 242
Cattle.....do....	1, 824, 774	1, 369, 593	1, 554, 543
Mules.....do....	14, 470	14, 238	8, 376
Hogs.....do....	2, 765, 900	1, 595, 312	2, 320, 664
Sheep.....do....	4, 448, 227	5, 368, 745	4, 779, 662

Yield per acre.

	1862. Ohio returns.	1863. Ohio returns.	1863. Dep't estimates
Wheat.....bushels..	14 $\frac{1}{4}$	11 $\frac{1}{4}$	13
Rye.....do....	12 $\frac{1}{3}$	9 $\frac{2}{3}$	14
Barley.....do....	20 $\frac{1}{2}$	18	22
Buckwheat.....do....	7 $\frac{3}{8}$	7 $\frac{1}{2}$	11
Corn.....do....	29	28	24
Oats.....do....	20 $\frac{1}{3}$	20	24
Tobacco.....pounds..	..	751	757
Potatoes.....bushels..	63 $\frac{1}{4}$	54 $\frac{1}{2}$	72
Hay.....tons.....	1 $\frac{1}{3}$	1	1

Total acres.

	1862. Ohio returns.	1863. Ohio returns.	1863. Dep't estimates.
Wheat.....acres...	2, 090, 047	1, 791, 399	2, 210, 997
Rye.....do....	67, 440	32, 280	61, 659
Barley.....do....	59, 128	72, 856	63, 594
Buckwheat.....do....	23, 508	26, 735	75, 215
Corn.....do....	2, 175, 531	1, 917, 805	2, 393, 075
Oats.....do....	574, 047	568, 522	501, 001
Tobacco.....do....	.....	49, 168	37, 096
Potatoes.....do....	81, 060	79, 703	56, 984
Hay.....do....	1, 571, 765	1, 167, 697	1, 347, 710

* Estimate of the Commissioners of Statistics.

The first thing that will strike the attentive examiner of these tables is the great difference in the Ohio returns between the years 1862 and 1863. In wheat it is 9,715,056 bushels, and in rye, 518,649 bushels. Here is a loss of one-third in wheat, and over 62 per cent. in rye. What extraordinary casualties caused them? In this Department inquiries of the condition of the crops were made from May to September, every month; and if any such had fallen upon the crops of 1863, the correspondents of fifty-two counties in Ohio would have had some knowledge of them. Of their returns, but three counties returned a very low yield of the wheat crop, and but seven moderately low; whilst twelve were returned above the crop of 1862. The average injury to the wheat crop was $1\frac{1}{3}$ tenths. The returns by them of the rye crop exhibit a still more favorable condition.

In the buckwheat crop, it will be seen that the estimates of this Department are much greater than either of the years showing the returns of Ohio. Which is right?

In 1859 the Ohio returns show that there were 149,645 acres of buckwheat in cultivation, yielding 2,222,083 bushels; but this large amount was occasioned by the freezing of wheat in June, and a largely increased acreage in buckwheat was the consequence. But in 1860 the number of acres in buckwheat was 66,827, and the yield 763,930 bushels. How is it possible for so great a falling off as the returns for 1862 and 1863 exhibit? The severe drought in the eastern part of the State in 1862 may account for a small portion of it; but a difference so very great must find other and more general cause.

In tobacco there is an increase as remarkable as the decrease of the products just referred to. Until 1863 the Ohio returns did not embrace this product; but Mr. Mansfield, the commissioner of statistics, estimated the amount at 25,000,000 pounds in 1862. Yet the returns show a product in 1863 of 36,918,793 pounds. The estimates of this Department may have been too low, for want of a proper basis to determine the true value of the returns of its correspondents, and it was a year of remarkable changes in tobacco cultivation. But still we believe that it is nearer the correct amount than the Ohio returns. The number of acres in tobacco is reported to be 49,168; whilst that in buckwheat is but 26,735, and in rye only 32,280. Such statistics, it seems to us, are very extraordinary.

In farm stock there is not the same difference, although apparently there is considerable. The estimates of the Department show the number in January 1864, whilst the returns of the Ohio assessors show perhaps the number in the spring following. During the winter many cattle had been sold for beef, and a large number of shoats and pigs had been lost for want of food to properly winter them and the sows. But sheep had been well taken care of and had yielded their ordinary increase. As to mules, it is probable the Ohio returns are more correct than the estimates of the Department, for the number as shown in the census returns of 1860, being but 6,917 for asses and mules, was doubtless too low, but it had to be accepted as the basis of the estimates of this Department.

This comparison but gives us more confidence in the plan adopted by the Department for estimating the annual agricultural productions. Regarding its rapid action and its very small cost, with its general approximation to correctness, it may justly be regarded as worthy public confidence, and of that encouragement of a regular corps of correspondents, which has often been asked of Congress in these reports.

On the other hand, the comparison will also serve to exhibit the unreliability of State returns made by assessors, who feel no interest in the statistics they gather, because they have not learned to appreciate their value, as have the correspondents of this Department, nor are they compelled to properly discharge their official trusts, by penalties upon them, for neglect, or for failing to return those who refuse to give in the true amount of their annual productions.

CALIFORNIA.

In the last bi-monthly report we exhibited the agricultural losses in California from the drought of last winter. Our correspondent in San Luis Obispo county, one of the southern counties, thus refers to these losses in his county:

"The extreme drought of the past year has caused quite a famine in the southern part of this State—a thing heretofore unknown in California. In fact, meetings and fairs were held in San Francisco for the relief of the people of Santa Barbara county, and were it not for recent mineral discoveries in this county which give employment to the people, who otherwise would be suffering, our condition would be no better. The causes of this destitution are failure of the crops and loss of stock. The number of cattle in this county October 1, 1863, was estimated at 76,850 head, of which four-fifths have since died from starvation, and unless we have early and warm rains very few will live over winter.

"This great loss of cattle will have the effect of compelling *rancheros* to sell their vast ranches, or at least portions of them (for it is a very usual thing to be the owner of from one to thirty leagues of land in this State, exclusively used for stock,) and having changed hands, it will be reasonable to suppose that the agricultural pursuits will receive an impetus. Our land is unexcelled for richness and productiveness, climate unequalled, and being situated immediately on the coast, we have all facilities for exportation to a good market."

This great loss of cattle, if it should result in the breaking up of these large estates, would be a blessing instead of a misfortune. In referring to this dependence on pastures for sustaining the stock, it was urged eighteen months ago by this Department that all the straw of the wheat crop should be saved, with what hay could be made from the wild oats, to sustain the large stock. The experience of western Texas and Kansas, where the eastern limit of the California dry climate is found, suggested this recommendation of saving the straw. Uncertain and long-continued droughts is incident to the dry trade-wind regions, and the farmer should be prepared for them. But this cannot be done until the cultivation of the cereals bears some proportion to the stock pastured, and this can only be by a greater labor. Such labor must be found in the owner of the soil, and to induce such ownership these great estates must be broken up.

Speaking of the coming crop for 1865, our intelligent correspondent from Santa Clara county says:

"Owing to the scarcity and high price of wheat and barley, I do not think two-thirds the number of acres will be sown the coming winter that were under cultivation in the winter of 1862, and probably not as many acres as were sown last winter, so that with a favorable season the grain crop of 1865 must in all probability be small compared with former crops in good seasons. Most of our farmers, owing to the failure of crops the past season, and the disastrous results of the unprecedented drought the past summer, have but little means to farm with the coming winter. Two-thirds of them cannot command capital sufficient to purchase the requisite amount of seed to sow more than half the number of acres usually cultivated by them. There are others (but few, however) who will sow all their lands, and others, having the means, will be induced to put in larger tracts of new land, should we have early rains, believing the price of grain next summer will rule high."

On the same subject, our correspondent from Stanislaus county remarks:

"In this county and section not one-twentieth of a crop was harvested last season, and this season just opened not more than one-third of the ground will be seeded, because the farmers are too poor to purchase seed. One-third of the cattle have perished from want of feed. Sheep and hogs are the only stock doing well. Of the former there are about 100,000 head in the county, producing an average of two and a-half pounds of wool each per annum; their annual

increase is between 80 and 90 per cent. Of the latter, (hogs,) about fifteen thousand are fed on mast in the county and in the foot-hills of the adjoining counties. No rain has fallen to date, (November 12,) and another dry season is anticipated by many."

Telegraph accounts of the 30th of November represent that abundant rains were then falling, and on the 14th December heavy floods were apprehended.

In *Tulare* county the wheat and barley crops were less than one-half the customary yield, and but one-half the number of fattening cattle. Fattening hogs were an average. Corn is largely increased by extending irrigation. "No rain yet, adds our correspondent, and all the cattle are driven to the swamps and mountains. A warm early fall rain will save thousands, but if late and cold, our stock will be fearfully thinned."

In *San Diego* and *Merced* counties the wheat, barley, corn, and potato crops were better—about three-fourths of an average crop.

In counties where the soil is loose, early sowing has commenced, if we judge aright from the following, in the *San Francisco Mercantile Gazette* of November 2. It says:

"We learn from good authority that the farmers in *Yolo* and *Solano* counties, who were so unfortunate as not to raise any crops of cereals the past season, have taken time by the forelock, and have been harrowing up their ploughed grounds, which are now like an ash heap, and have already sown thousands of acres of barley and wheat. The whole farming country in the vicinity of *CACHE* creek and *Vacaville* is already planted in grain."

The deficiency in the crop of this season is supplied by importation. The paper quoted from says it is advised that 7,000 barrels of flour have already been shipped to California from New York; that several cargoes of flour and wheat from *Chili* are looked for, and that *Oregon* will not be unmindful of the high prices in California.

OREGON.

Our returns of the crops in this State are principally from its northern counties. They are a full average in some products, and above it in others. Here is the reverse in all those products, cereal and stock, in which the season has been so injurious in California. The cause will be seen from the leading article in this report—the difference in climate. California lies in the dry trade wind belt, but *Oregon* in the extra-tropical region, where showers fall both summer and winter. There are occasional droughts in it, as in the Atlantic States, but no such prolonged and destructive ones as occasionally occur in the trade wind belts.

Compare the crops of California and of *Oregon*, and the nature of these climates will be seen. The loss of crops and stock in the one has been set forth under the preceding head of this article; the abundance of the other will be seen in the following extracts from our correspondent in *Columbia* county, *Oregon*:

"The average crop of wheat per acre in this county is 30 to 35 bushels; rye per acre, 40 bushels; barley, 40 bushels; oats, 40 bushels; corn, 35 to 40 bushels; the nights are too cold for corn to do well. Tobacco does well. In 1863 was the commencement of its export. I cannot state certainly the amount per acre, but those with whom I have conversed say that 1,600 pounds would be a fair average. Potatoes, 300 to 400 bushels per acre; hay, 3 to 4 tons per acre."

Europe is situated in this extra-tropical climate, and hence there, as in *Oregon*, there is not a sufficient degree of heat to grow Indian corn profitably.

UTAH.

The returns from this Territory are not as full as usual—the Indian depredations having, we suppose, rendered the mail more irregular. But they present the agriculture of Utah in the same favorable aspect as heretofore presented in these reports. The wheat crop has largely increased; so has the hay crop—keeping pace with the increase of cattle. Hogs, in some of the counties, have decreased. Sorghum, flax, tobacco, &c., are cultivated to a considerable extent, showing that Utah means to depend on its own agricultural resources. Not a single crop referred to in the circulars but seems to be cultivated.

COLORADO.

Our correspondent at Denver writes, that on the 2d of October there were a few snow-flakes on the plains, a heavy storm in the mountains, and that in the night of that day they had the first killing frost. Fall pastures there, as here, are unusually good; but peas and beans were injured by floods, and hay, fodder, turnips, and, in places, wheat, had been injured by the grasshoppers. "They were so numerous," remarks the correspondent, "in Gilpin county, as to eat everything green. The prospects for a large crop of roots and grass were uncommonly fine, but the grasshoppers came in such immense numbers that they appeared like snow-flakes in a heavy storm." But our returns from Colorado are yet too limited to give a general statement of its agricultural condition.

Table showing the amounts and injuries of certain crops of 1864, stated in tenths.

STATES.	PEAS.		BEANS.		WINTER APPLES.		GRAPES.		HOTS.		FALL PASTURES.		FALL BUTTER AND CHEESE.		SORGHUM.		CUT-UP CORN AND FODDER.		CLOVER-SEED.	
	Average amount of crop, compared with 1863.	Injury to crop from all causes.	Average amount of crop, compared with 1863.	Injury to crop from all causes.	Average amount of crop, compared with 1863.	Injury to crop from all causes.	Average amount of crop, compared with 1863.	Injury to crop from all causes.	Average amount of crop, compared with 1863.	Injury to crop from all causes.	Average condition of fall pasture, compared with 1863.	Injury from any cause.	Average amount of fall butter, compared with 1863.	Average amount of fall cheese, compared with 1863.	Average amount of molasses per acre, compared with 1863.	Injury from frost in October.	Average amount of cut-up corn and fodder, compared with 1863.	Injury from wet or other causes.	Average amount of clover seed, compared with 1863.	Injury to crop from all causes.
Maine.....	8	7 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6	9	9 $\frac{1}{2}$	9	5	6	6	8	10	2	12	---	8	8	4	7
N. Hampshire.....	7 $\frac{1}{2}$	8	10	7 $\frac{1}{2}$	10	7 $\frac{1}{2}$	12	9	7	7	6	8	10	10	10	---	9	8	8	7 $\frac{1}{2}$
Vermont.....	9	7 $\frac{1}{2}$	9 $\frac{1}{2}$	7 $\frac{1}{2}$	10	7 $\frac{1}{2}$	10	7 $\frac{1}{2}$	5	5	6	4	9	6	9	---	9	8	9	7
Massachusetts.....	8	7 $\frac{1}{2}$	10	11	8	9	11	8	6	6	6	8	11	8	10	---	11	9	11	7
Rhode Island.....	9	8	10	8	7	6	9 $\frac{1}{2}$	6	9	9	11	8	8	11	10	---	10	9	11	9
Connecticut.....	8	7 $\frac{1}{2}$	9	7 $\frac{1}{2}$	8	7 $\frac{1}{2}$	9	7 $\frac{1}{2}$	7	7	11	7	10	10	9	---	11	7	9	6
New York.....	8	7 $\frac{1}{2}$	9 $\frac{1}{2}$	7 $\frac{1}{2}$	12	7	9	8	8	8	13	7	11	10	12	---	10	7	7	7
New Jersey.....	8 $\frac{3}{10}$	7	11	7 $\frac{1}{2}$	13	7	10	8	9	8	8	7	8	10	7	---	9	7	7	6
Pennsylvania.....	7	7	11	7 $\frac{1}{2}$	12	7	7	7	10	8	8	7	10	7	10	---	10	7	7	6
Maryland.....	11	9	10	8	4	4	5	4	10	9	13	3	11	11	10	---	10	7	7	6
Delaware.....	8	7 $\frac{1}{2}$	10	7 $\frac{1}{2}$	13	7	8	6	9	8	14	7	12	11	10	---	12	7	7	6
Kentucky.....	9	8	10	7 $\frac{1}{2}$	13	7	8	6	9	8	13	3	11	11	10	---	12	7	7	6
Ohio.....	9	8	10	7 $\frac{1}{2}$	13	7	8	6	9	8	14	7	12	11	10	---	12	7	7	6
Michigan.....	8	7 $\frac{1}{2}$	9	7	6	5	5	4	8	8	12	7	10	9	9	---	11	7	7	6
Indiana.....	9	8	10	7	7	6	7	5	8	8	12	7	10	9	9	---	11	7	7	6
Illinois.....	9	8	10	7	7	6	7	5	8	8	12	7	10	9	9	---	11	7	7	6
Missouri.....	5	6	7	6	5	4	4	3	10	8	9	7	7	8	11	---	11	7	7	6
Wisconsin.....	10	7	11	7	11	7	10	7	10	8	10	7	10	9	10	---	10	7	7	6
Iowa.....	9	8	10	7	11	7	10	7	10	8	10	7	10	9	10	---	10	7	7	6
Minnesota.....	9	8	10	7	11	7	10	7	10	8	10	7	10	9	10	---	10	7	7	6
Kansas.....	9	8	10	7	11	7	10	7	10	8	10	7	10	9	10	---	10	7	7	6
West Virginia.....	10	10	11	9	15	9	12	8	10	7	15	8	14	14	14	---	10	7	7	6
Nebraska Ter'y.....	7	7	7	5	6	8	13	8	1	1	12	8	11	12	8	---	11	7	7	6

Table showing the condition and amount of the fall sown crops, and the weather, for October and November, 1861.

STATES.	WINTER WHEAT.			WINTER RYE.		WINTER BARLEY.			WEATHER.													
	Average amount of winter wheat sown, compared with 1863.		Injury to it from fly or other cause.	Average amount of winter rye sown, compared with 1863.		Injury to it from any cause.	Average amount of winter barley sown, compared with 1863.		Injury to it from any cause.	Number of weeks.												
										October.					November.							
	Favorable.	Wet.	Very wet.	Dry.	Very dry.	Frost.	Snow.	Favorable.	Wet.	Very wet.	Dry.	Very dry.	Frost.	Snow.	Favorable.	Wet.	Very wet.	Dry.	Very dry.	Frost.	Snow.	
Maine	9 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	6	10	10	10	10	29	5	5	1	4	1	1	18	15	3	1	1	2	4
New Hampshire	13 $\frac{1}{2}$	13 $\frac{1}{2}$	13 $\frac{1}{2}$	8 $\frac{1}{2}$	11	10	10	11	19	7	7	4	1	1	1	15	11	3	1	1	2	7
Vermont	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{1}{2}$	8 $\frac{1}{2}$	12	9	9	12	12	11	11	1	1	2	1	10	9	3	1	1	2	7
Massachusetts	9 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	11	9	9	11	29	5	5	1	4	1	1	18	15	3	1	1	2	4
Rhode Island	10 $\frac{1}{2}$	10 $\frac{1}{2}$	10 $\frac{1}{2}$	8	11	9	9	11	5	3	3	6	1	1	1	9	9	2	1	1	2	3
Connecticut	10 $\frac{1}{2}$	10 $\frac{1}{2}$	10 $\frac{1}{2}$	8	11	8 $\frac{1}{2}$	8 $\frac{1}{2}$	11 $\frac{1}{2}$	11	2	2	6	5	7	3	32	62	14	1	1	1	3
New York	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{1}{2}$	6	10	8	8	10	16	3	3	4	1	4	1	11	10	3	1	1	2	1
New Jersey	10 $\frac{1}{2}$	10 $\frac{1}{2}$	10 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	63	54	8	4	1	1	1	34	72	14	1	1	7	24
Pennsylvania	11	9 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	11	9	9	10	27	2	2	8	1	1	1	25	5	4	8	1	2	1
Maryland	9 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	10	9	9	10	2	3	3	1	1	1	1	2	4	1	1	1	2	1
Delaware	9	9 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	10	9	9	10	10	18	18	2	1	1	1	6	16	11	1	1	3	1
Kentucky	9 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	9	9	10 $\frac{1}{2}$	71	55	9	19	14	1	1	53	72	9	10	1	3	1
Ohio	10	10	10	8 $\frac{1}{2}$	10 $\frac{1}{2}$	5	5	10 $\frac{1}{2}$	38	14	14	2	2	6	2	12	24	7	1	1	4	23
Michigan	10	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	69	23	23	1	1	5	2	48	36	10	10	1	4	12
Indiana	11	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	89	22	22	56	1	13	3	51	73	8	19	1	29	11
Illinois	10 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	7 $\frac{1}{2}$	10 $\frac{1}{2}$	9	8 $\frac{1}{2}$	9	15	4	4	1	17	5	5	18	5	2	10	1	10	5
Missouri	12	7 $\frac{1}{2}$	7 $\frac{1}{2}$	8 $\frac{1}{2}$	9	9 $\frac{1}{2}$	9 $\frac{1}{2}$	9	9	9	9	22	3	4	1	11	26	5	7	1	13	18
Wisconsin	13	9 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	10 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	10	44	9	9	4	1	10	6	37	26	6	14	1	17	33
Iowa	9 $\frac{1}{2}$	9	9	9	10 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	10	52	21	21	43	10	4	4	10	12	1	12	1	7	9
Minnesota	8	9	9	9	10 $\frac{1}{2}$	9	9	10	3	7	7	32	4	4	4	10	8	3	2	2	2	7
Kansas	12	9	9	9	9 $\frac{1}{2}$	8	8	9	15	4	4	9	1	3	3	10	6	1	3	1	2	5
West Virginia	9 $\frac{1}{2}$	8	8	8	12 $\frac{1}{2}$	9	9	14	13	8	8	4	4	4	10	6	1	3	2	2	7	4
Nebraska Territory	10	10	10	10	15	10	10	10	6	2	2	4	1	1	1	2	10	6	1	2	2	4

COMMENTS ON THE FOREGOING TABLE.

In the last bi-monthly report the principal crops were given; those embraced in the preceding tables are of minor magnitude, although important, nevertheless.

As no estimates have heretofore been made of their amount in bushels and pounds, it is now too late to attempt it, but must be deferred until another census is taken.

The reader will remember that 10 represents the crop of the year referred to in the several questions, and that all figures above or below that number are so many tenths, as the figure is above or below 10. Thus, in the crop of peas, Maine is 8, which represents two-tenths, or twenty per cent. below the crop of last year. In Wisconsin it is $10\frac{1}{2}$, meaning a *half* of a tenth above the crop of 1863. We will notice the principal of the crops named in the table:

Peas and beans.—The principal pea producing States are Georgia, Mississippi, and North and South Carolina; and those which grow most beans are the northern States—Maine, New Hampshire, Connecticut, New York, Pennsylvania, Ohio, Michigan, and Illinois. But the census returns do not separate these crops, and hence what part of the returns for each State is peas and what beans cannot be determined.

In Maine the crop of beans is $1\frac{1}{3}$ tenth below the crop of last year; in New York, $1\frac{2}{3}$ tenth below; in Pennsylvania and Michigan, one-tenth below; in Illinois, $2\frac{7}{10}$ tenths above; and in New Hampshire, Connecticut, and Ohio, the same as last year's crop. Altogether, the crop is considerably less than last year's.

Hops.—In 1860 the great hop-growing State was New York, which then produced nine and a half millions of pounds out of the eleven millions raised in the United States. But since then hop culture has been much increased in other States.

The crop in New York of 1864 is $1\frac{1}{3}$ tenths below that of last year, and it is much inferior, being greatly injured by insects. Vermont is next to New York, and in it there is but half the crop of last year. In New Hampshire it is three-tenths, or 30 per cent. below.

Butter and cheese.—The fall pastures were unusually excellent, and, as a consequence we find the fall production of butter and cheese very favorable. We notice only four of the chief butter and cheese producing States. In New York, butter is a half of a tenth, or five per cent., above the amount made last year; in Pennsylvania it is $1\frac{1}{3}$ tenth above. In both of these States cheese is the same as last year. In Ohio, butter is two-tenths above, and cheese one-tenth above; in Illinois, butter is $1\frac{1}{3}$ tenths, and cheese two-tenths below last year's production.

Sorghum.—The crop of sorghum molasses is greater than the crop of 1862, the best heretofore produced. In the western States this year's crop was considerably injured, both in amount and quality, by the frost of October 9, but the crop is a satisfactory one. How far it will make sugar yet remains to be seen. But as the production of sugar requires a perfectly matured cane, no general progress in the making of sugar from the sorghum need be looked for this year.

That most excellent paper, the Cincinnati *Sorgo Journal*, thus speaks of the unfavorable nature of the season in the spring and summer, and the effects of the frosts of autumn:

"In almost all sections of the country the spring was unpropitious, and many were, on that account, deterred from planting; others planted, and finding the seed fail to come in due time, replanted with corn. Others replanted cane seed, many as late as the 1st of June, and were obliged to watch the apparently ineffectual struggle of the feeble plants against one of the most protracted and pinching droughts ever experienced in the country. But on the last of July

and in the month of August the rains came, and throughout the entire cane-growing belt from the great Salt Lake valley to the shores of the Atlantic, the aspect of the crop was changed; the hopes of the planter were revived, and all ventured to calculate upon a small return for their labor, provided frost did not occur until late in September. From the 1st of August until the night of the 18th of September the weather was most favorable, and many fields of cane matured, though the largest portion of the crop was even then two or three weeks behind, some being only in the flower. At this time the first frost of the season occurred, visiting, so far as we have learned, the whole region of country north of the central line of the States of Ohio, Indiana, and Illinois, extending somewhat below the line in the latter State, and not reaching quite down to it in Ohio. This was, however, only a frost, not a *freeze*, and, as is well known to experienced cultivators, not a great disaster. The development of the cane was, of course, arrested where the blades were entirely killed, but this was not generally the case; and even where the verdure was wholly blighted, the partly mature cane seems to have gone on in a process of ripening or perfecting itself, not, perhaps, in a strict sense by the filling out of seed and a regular development of saccharine matter, but by a modification of the crude vegetable elements, the evaporation of water, and a general improvement in the taste of the cane. We noticed that cane which was in the flower when the frost of the 18th occurred began to acquire from day to day the taste of ripe cane, losing, in a great measure, the grassy or vegetable taste which belongs to that stage, even when there was no perceptible development of the seed head. In cases where the blades were not all killed we think the seeds continued to fill out as usual. We have tried to believe that the perfecting of the panicle was precipitated, or in some degree hastened, by the *visitation* upon the blades, but careful observation from day to day does not enable us to say that this was the case.

"On the night of Saturday, October 8, a heavy frost, amounting to a freeze, occurred. The thermometer in some of the cane regions fell to 28° , in others as low as 26° . Ice formed an eighth of an inch thick, and stalks of standing cane were literally frozen. This was the end of the growing, and every careful husbandman, particularly all who read the *Sorgo Journal*, immediately put their hands into the field and cut down and sheltered the frosted cane with as little delay as possible. Those who did so had the satisfaction of finding their cane, even when worked several weeks afterward, in good order, while those who neglected or delayed this work for a week or two, or three, were obliged to pay the penalty in an unsatisfactory return for their labors."

Clover-seed.—Both our returns and the market prices of this product show how short the crop is. In Pennsylvania it is $2\frac{5}{8}$ tenths below the crop of last year; in New York, $3\frac{1}{4}$ tenths below, and in Ohio, $2\frac{3}{7}$ tenths below. These are the principal clover-seed producing States, and any material change in prices need not be looked for.

The full-sown crops.—However great the loss of farm labor has been, especially in the western States, the table shows that the usual amounts of wheat, rye, and barley have been sown. The weather has been unusually favorable for putting these crops in, and hence the labor of the country has had a longer time to operate in. It has been equally as favorable for the growth of these crops, and should they escape freezing out, the spring will open with the promise of an undiminished yield of these important staples.

EXPORTS AND PRICES OF PRODUCE.

[[From the Journals of Commerce of New York and Chicago.]]

Table of the exports from New York of the leading agricultural products, from January 1, 1864, to December 21, compared with those of the same time in 1863, and their prices at New York and Chicago on the 21st of December, 1864.

	1864.	1863.	1864, December 21.	
	From Jan. 1 to Dec. 21.	From Jan. 1 to Dec. 21.	Prices at New York.	Prices at Chicago.
Wheat flour . . barrels	1,899,983	2,472,287	\$9 55 to \$12 00	
Rye flour . . . do . .	2,840	5,441	9 00 to 9 45	
Corn meal . . . do . .	103,446	138,470	8 80	
Wheat bushels	12,165,343	15,093,012	2 28 to 2 60	\$1 52 to \$1 87
Corn do . .	841,297	7,530,931	1 90 to 1 91½	91 to 1 05
Rye do . .	588	416,369		1 20 to 1 32
Barley do . .	150	52,439	2 00 to 2 04½	1 40 to 1 55
Oats do . .	41,775	126,481	1 05 to 1 06	65 to 66
Peas do . .	184,433	105,609		
Cotton bales	26,744	13,877	1 23 to 1 25	
Hay do . .	39,257	19,916	1 40 to 1 70	1 00 to 1 10
Hops do . .	22,073	24,419	20 to 52½	33 to 55
Leaf tobacco . . hds.	89,639	57,545	10½ to 35	
Leaf tobacco . . pkgs.	69,774	46,948		
Manuf'd do . . pounds	4,948,476	3,412,748		
Petroleum . . . gallons	21,278,439	-----	75	
Pork barrels	129,421	189,080	39 12½ to 42 25	35 00 to 40 00
Beef do . .	36,061	40,508	19 00 to 24 00	16 00 to 20 00
Beef tierces	49,290	58,885	39 00	
Cut meats . . pounds	93,573,155	181,584,756	16½ to 21	16½ to 18½
Butter do . .	14,151,375	22,324,757	38 to 60	30 to 44
Cheese do . .	49,490,831	39,818,485	15 to 24	18 to 25
Lard do . .	53,070,467	120,316,131	20½ to 25	22 to 23
Tallow do . .	31,938,576	42,441,949	17 to 18	15 to 16½

WESTERN PORK TRADE.

The indications are that there will be an increase in the number of hogs slaughtered at Cincinnati and Chicago over that of last season. Still the prevailing impression is that there will be a large decrease in the whole number packed.

The Price Current of Cincinnati says: "There is no doubt now that the number to be packed here this season will far exceed that of last season, though, at one time, we thought it would not reach it by one hundred thousand, owing to the loss of Kentucky hogs which was then anticipated; indeed, it is not improbable that it may reach 450,000 head. The want of funds, or of courage, which will cause a falling off at the smaller places, will necessarily increase the business at the larger places, and it is this which is causing such large receipts at this point now, for there are no exertions being made by packers to bring hogs to this market."

The packers of Chicago evince a very different spirit, and where energy is put forth it will be rewarded; where it is wanting, trade will decline.

Referring to the large increase in the receipt of hogs at Chicago, Henry Milward & Co's. Provision Circular remarks:

"The increase in the receipt of hogs for the week might cause a well-merited

alarm in the minds of our provision merchants, were it not that they are well aware of the untiring exertions being made to keep our market well supplied. To do so is absolutely necessary. We have now in operation some thirty, first-class packing-houses, with twenty-five others of minor dimensions. The expenses they incur, if idle or only running on half work, are very great, so there is every incitement for the packers to endeavor to induce as large shipment of hogs as possible to our market. The eastern shippers are also largely interested in our receipts, and just at present are active competitors with us in our purchases.

"For the foregoing reasons the emissaries of the packers, shippers, and drovers are now scouring the country in all directions with a view to keeping us liberally supplied with hogs. *There is not a section of country in Illinois, Iowa, Wisconsin, Missouri, or Kansas, tributary to any railroad leading to Chicago, that our buyers are not actively traversing at present.* We are not much astonished at the large receipts for the past week, and we expect them to continue for a short time longer, but the more our supplies are increased the greater will be the falling off at the smaller packing points."

The market price had advanced a half cent per pound under these large receipts, and on the 21st of December the prices at Chicago were—

Extra hogs.....	\$12 25 to \$12 75
Fair to good.....	11 50 to 12 00
Common.....	10 75 to 11 25

HOGS PACKED AT CINCINNATI.

Years.	Number.	Years.	Number.	Years.	Number.
1833.....	85,000	1844.....	240,000	1855.....	355,786
1834.....	123,000	1845.....	196,000	1856.....	405,396
1835.....	162,000	1846.....	205,000	1857.....	344,512
1836.....	123,000	1847.....	250,000	1858.....	446,677
1837.....	103,000	1848.....	475,000	1859.....	382,826
1838.....	182,000	1849.....	417,000	1860.....	434,499
1839.....	190,000	1850.....	393,000	1861.....	433,799
1840.....	95,000	1851.....	334,000	1862.....	474,467
1841.....	160,000	1852.....	352,000	1863.....	608,457
1842.....	220,000	1853.....	361,000	1864.....	370,623
1843.....	250,000	1854.....	421,000		

GERMAN STATISTICS.

Prussian wool.—The following account of the sale of wool in the principal wool markets of Prussia is interesting, chiefly because of the change in the quality of the wool it exhibits:

In 1863 the amount of wool sold in these markets was 29,631,504 pounds, of which 6,217,568 pounds were *ordinary* wool, 16,130,464 pounds *middling*, 6,706,224 pounds *fine*, and 689,248 pounds *extra fine*. The quality, as to fineness, was every year diminishing, and the Silesian wools, well known for their fineness and their short and even growth, were losing their superiority. The reason assigned for this change is the great progress made in France and the Zollverein of the *combing* wool industry. There is a like progress of this industry in the United States, but how far peace will modify it cannot now be foreseen.

Beet sugar in the Zollverein.—Twenty years ago 560,000,000 pounds of beet-root were made into sugar; now there are 4,032,000,000 pounds, or nearly *eight* times as much; then, 2,016 pounds were required to make 112 pounds of sugar; now, 1,344 pounds only to make the same amount. There is a duty of *nine* millions of dollars levied on this sugar; yet, it is said, the profit from the cultivation of this root is great.

Austrian tobacco.—The annual amount of tobacco grown in Austria is stated to be 125,440,000 pounds.

PRICES OF PRODUCE IN GREAT BRITAIN.

The following table exhibits the prices of breadstuffs on the 1st of December for the years stated therein.

	1864.	1863.	1862.	1861.	1860.
Wheat..... per quarter	\$9 22	\$9 78	\$11 22	\$14 48	\$12 62
Barley.....do.....	6 76	8 04	8 16	8 88	9 40
Oats.....do.....	4 86	4 66	5 00	5 44	5 38
Rye.....do.....	6 40	7 10	8 16	9 08	8 40
Beans.....do.....	9 08	8 46	9 12	10 22	11 46
Peas.....do.....	8 50	8 06	9 60	10 48	10 80

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

OCTOBER, 1864.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for October, 1864, at the following places, as given by the observers named. The daily observations were made at 7 o'clock a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Steuben	Washington	J. D. Parker	8	65	27	26	31.8	5.10
Lee	Penobscot	Edwin Pitman	7	64	27	26	44.5	3.95
West Waterville....	Kennebec	B. F. Wilbur	7	66	27, 30	28	44.5	2.60
Gardiner	do	Rev. F. Gardiner	4, 7	66	27	29	46.0	2.76
Lisbon	Androscoggin	Asa P. Moore	5	63	27	26	44.8	2.90
Cornishville	York	G. W. Guptill	4	66	10	31	45.4	3.95
Cornish	do	Silas West	4, 5	60	10	24	40.9	3.80
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	5	66	30	23	41.0	4.09
Shelburne	do	F. Odell	6	69	12	26	45.5	.....
Barnstead	Belknap	Chas. H. Pitman	5	74	9, 10, 31	34	48.1	3.95
Claremont	Sullivan	Arthur Chase	6	68	30	27	46.0	5.95
Do	do	S. O. Mead	5	66	12, 30	30	46.9	.....
VERMONT.								
Lunenburg	Essex	Hiram A. Cutting	25	75	31	25	48.1	6.13
Craftsbury	Orleans	Jas. A. Paddock	6	63	29, 30	28	40.1	4.44
Burlington	Chittenden	Rev. McK. Petty	6	64	30	25	42.5	4.67
Middlebury	Addison	H. A. Sheldon	3	66	30	32	47.6	3.92
MASSACHUSETTS.								
Sandwich	Barnstable	N. Barrows, M. D. ...	7	68	30	31	49.2	2.28
West Dennis	do	Eugene Tappan	7	69	10	35	51.0	1.94
Newbury	Essex	Jno. H. Caldwell	4	69	30	28	46.3	.....
Topsfield	do	A. M. Merriam	4	71	22	34	46.8	3.79
New Bedford	Bristol	Samuel Rodman	7	68	10	33	48.4	2.39
State L. Hospital	Worcester	F. H. Rice	4	70	10, 12	34	50.5	4.29
Mendon	do	Jno. G. Metcalf	5, 7	69	10	31	47.5	.....
Baldwinsville	do	Rev. E. Dewhurst	7	62	10	27	.....	4.20
Amherst	Hampshire	Prof. E. S. Snell	4	69	22	29	46.4	2.94
Springfield	Hampden	J. Weatherhead	4	78	10	28	47.1	2.07
Westfield	do	Rev. E. Davis	4	72	18	28	46.9	3.43
Richmond	Berkshire	Wm. Bacon	5	70	12	27	45.1	.....
Williams College	do	Prof. A. Hopkins	4, 5	63	12	30	45.6	3.

Table showing the range of thermometer, &c., for October—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
RHODE ISLAND.								
Providence	Providence	Prof. A. Caswell	4, 7	70	9	35	48.2	2.85
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	4	68	10	30	46.0	4.93
Columbia	Tolland	Wm. H. Yeomans ...	5	78	10	32	50.9	.....
Middletown	Middlesex	Prof. John Johnston ..	5	72	12	33	41.4	2.66
Colebrook	Litchfield	Charlotte Rockwell ..	4, 7	66	12	29	45.4	.....
NEW YORK.								
Moriches	Suffolk	Mrs. & Miss Smith ..	7	75	22	34	55.0	2.75
Fort Ann	Washington	P. A. McMore	13	80	10	35	49.8	.....
South Hartford	do	G. M. Ingalsbe	3	73	30	32	49.4	4.35
Fishkill	Dutchess	Wm. H. Denning ..	5	71	10, 12, 26	36	50.4	2.70
Garrisons	Putnam	Thomas B. Arden ..	4	69	10, 26	37	48.0	2.46
Throg's Neck	Westchester	F. M. Rogers	7	70	10, 18, 22	41	49.7	2.29
Deaf & Dumb Inst.	New York	Prof. O. W. Morris ..	5	73	10, 15	42	54.4	2.68
St. Xavier's College ..	do	Rev. Jno. M. Aubier ..	7	70	10	40	52.6	2.16
Flatbush	Kings	Eli T. Mack	7	68	10	34	52.0	2.04
Schenectady	Schenectady	Harmon V. Swart ..	4	66	27	30	47.3	.....
Gouverneur	St. Lawrence	C. H. Russell	6	67	30	25	47.8	4.30
South Trenton	Oneida	Storrs Barrows						6.33
Oneida	Madison	Dr. S. Spooner	6	69	22	32	46.8	7.11
Theresa	Jefferson	S. O. Gregory	3	66	30	29	44.5	6.26
Palermo	Oswego	E. B. Bartlett	3	69	26	27	44.2	6.00
Oswego	do	Wm. S. Malcolm	3, 6	68	22	35	47.3	5.72
Skaneateles	Onondaga	W. M. Beauchamp ..	5	66	9	31	44.4	.....
Baldwinsville	do	John Bowman	6	65	22	33	44.7	.....
Auburn	Cayuga	John B. Dill	6	70	9, 15, 18	38	48.4	.....
Nichols	Tioga	Robert Howell	4	74	18	28	46.9	.....
Palmyra	Wayne	Stephen Hyde	6	70	26	34	48.1	.....
Geneva	Ontario	Rev. W. D. Wilson ..	6	67	9	34	47.0	4.18
Rochester	Monroe	Prof. C. Dewey	6	72	26	32	46.5	5.51
Wilson	Niagara	E. S. Holmes, D.D.S. ..	6	73	26	34	47.2	.....
Buffalo	Erie	Wm. Ives	3	70	15, 26	34	47.0	5.73
Jamestown	Chautauqua	Rev. S. W. Roe, M.D. ..	4	72	15	29	46.3	7.80
NEW JERSEY.								
Newark	Essex	W. A. Whitehead ...	7	70	10	32	51.6	2.68
Mount Holly	Burlington	M. J. Rhees, M. D ..	6	75	10	35	51.8	.....
Burlington	do	John C. Deacon	6	74	10	31	50.9	2.00
Progress	do	Thomas J. Beans	6	76	10	34	51.5	1.79
Haddonfield	Camden	J. S. Lippincott	6	75	10	35	51.3	1.85
Greenwich	Cumberland	Clarkson Sheppard ..	6	69	26	34	49.2	1.59
PENNSYLVANIA.								
Fallsington	Bucks	Ebenezer Hance	7	74	10, 18	37	52.3	1.80
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick ..	6	75	10	38	54.2	1.73
Do	do	Homer Eachus	7	72	10	38	55.6	1.75
Germantown	do	Thos. Meehan	7	78	10	31	.....	.....
Moorland	Montgomery	Anna Spencer	6	72	18	34	51.4	2.30

Table showing the range of thermometer, &c., for October—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
PENNSYLVANIA—C'd.								
Nazareth.....	Northampton.....	Lucius Ricksecker..	7	79	18	32	50.6	In.
North Whitehall.....	Lehigh.....	Edward Kohler.....	5	70	10	29	50.5	.....
Silver Spring.....	Lancaster.....	H. G. Bruckhart.....	6	75	15, 30	32	50.0	.....
Berwick.....	Columbia.....	John Eggert.....	6	71	15	34	50.6	1.99
Harrisburg.....	Dauphin.....	John Heisely, M. D.	6, 7	72	10	39	53.2	1.69
Tioga.....	Tioga.....	E. T. Bentley.....	4	78	15	26	47.3	2.30
Gettysburg.....	Adams.....	M. & H. E. Jacobs..	6	76	10	32	49.4	2.67
Fleming.....	Center.....	Samuel Brugger.....	4	74	10, 26	30	48.0	3.51
Pennsville.....	Clearfield.....	Elisha Fenton.....	4	75	18, 26	28	45.7	2.52
Blairsville.....	Indiana.....	W. R. Boyers.....	11, 14, 15, 22	58	9	30	48.0	6.70
Connellsville.....	Fayette.....	John Taylor.....	5	80	21	29	47.9	.....
Cannonsburg.....	Washington.....	Rev. Wm. Smith, D. D.	5	74	20, 22	30	.....	.....
DELAWARE.								
Wilmington.....	New Castle.....	Dr. Urban D. Hedges	6	78	10	32	52.3	1.80
MARYLAND.								
Annapolis.....	Anne Arundel.....	Wm. R. Goodman....	6	77	10, 21	35	54.8	3.20
Oakland.....	Howard.....	Philip Tabb.....	6	72	10	33	49.8	.....
Sykesville.....	Carroll.....	Miss H. M. Baer....	6, 7	75	26	33	51.9	1.50
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Inst'n..	6	77	10	37	53.9	1.32
SOUTH CAROLINA.								
Beaufort.....	Beaufort.....	Mrs. M. M. Marsh....	5, 6, 7, 12	82	23	52	60.3	.....
Hilton Head.....	do.....	Lieut. C. R. Suter....	2	92	29	50	68.1	2.70
KENTUCKY.								
Louisville.....	Jefferson.....	Mrs. L. Young.....	4	78	9, 25, 30	30	51.3	3.52
OHIO.								
Saybrook.....	Ashtabula.....	James B. Fraser.....	6	72	25	33	47.8	2.75
Austinburg.....	do.....	E. D. Winchester.....	6	73	26	30	51.0	2.15
New Lisbon.....	Columbiana.....	J. F. Benner.....	5	82	22	30	48.1	2.18
Welshfield.....	Geauga.....	B. F. Abell, A. M....	3, 4, 5, 6	70	9	33	47.0	2.79
Cleveland.....	Cuyahoga.....	Mr. & Mrs. G. A. Hyde	6	75	25	36	50.4	1.63
Wooster.....	Wayne.....	Martin Winger.....	5	75	21	30	48.6	.....
Smithville.....	do.....	John H. Myers.....	5	72	9, 14	34	48.2	.....
Gallipolis.....	Gallia.....	A. P. Rogers.....	5, 6	77	19, 20, 31	32	50.8	2.68
Kelley's Island.....	Erie.....	Geo. C. Huntington	6	70	9	35	51.2	3.20
Norwalk.....	Huron.....	Rev. A. Newton.....	6	71	25	31	47.6	2.84
Westerville.....	Franklin.....	Prof. D. Thompson....	6	71	20	26	48.0	2.22
Kingston.....	Ross.....	Prof. Jno. Haywood..	5	76	20	32	50.4	2.65
Portsmouth.....	Scioto.....	L. Engelbrecht.....	5	74	9, 31	37	52.6	2.65
Urbana.....	Champaign.....	Prof. M. G. Williams	6	68	25	27	46.8	1.89
Hillsborough.....	Highland.....	J. McD. Mathews....	6, 7	71	9	33	50.6	2.19
Ripley.....	Brown.....	Dr. G. Bambach.....	4	79	20	33	53.2	2.43

Table showing the range of the thermometer, &c., for October—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
OHIO—Cont'd.								
Bethel	Clermont	Geo. W. Crane	4	76	19, 20	31	46.4	4.83
Eaton	Preble	Miss Ollitippa Larsh	6	64	9	33	47.9	1.45
College Hill	Hamilton	John W. Hammitt	4	79	9	32	49.4	3.88
Do	do	I. H. Wilson	4	71	23	36	51.3	3.15
Do	do	Geo. W. Harper	4	82	19, 25	33	50.2	2.92
MICHIGAN.								
Pontiac	Oakland	Jas. A. Weeks	5	64	21, 25	28	45.3	.....
Monroe City	Monroe	Miss F. E. Whelpley	5	69	25	29	46.8	1.38
Ypsilanti	Washtenaw	C. S. Woodard .....	.....	.....	.....	.....	.....	.....
Agricultural College	Ingham	Prof. R. C. Kedzie	2	63	17	24	45.7	1.85
Garlick	Ontonagon	Edwin Ellis	13	60	24, 25	30	42.2	.....
INDIANA.								
New Castle	Henry	T. B. Redding, A. M.	3, 7, 15, 16	64	29	28	45.4	1.65
Spiceland	do	Wm. Dawson	4	68	19, 20	39	47.6	1.80
New Albany	Floyd	Dr. E. S. Crozier	4	75	31	30	49.8	1.90
South Bend	St. Joseph	Reuben Burroughs	11	71	13, 20, 25	30	45.8	2.07
Indianapolis	Marion	Royal Mayhew	4	69	20	30	48.6	1.89
Do	do	W. W. Butterfield	4	69	20	27	48.4	.....
Bloomington	Park	Wm. H. Hobbs	6	70	9	30	.....	.....
Rensselaer	Jasper	Dr. J. H. Loughridge	4	68	9, 20	27	46.5	1.70
New Harmony	Posey	Jno. Chappellsmith	4	72	21	25	51.1	1.13
ILLINOIS.								
Chicago	Cook	Samuel Brooke	14	68	17	25	45.0	.....
Riley	McHenry	E. Babcock	14	70	17	21	44.5	2.13
Ottawa	La Salle	Mrs. E. H. Merwin	14	72	18	33	48.0	1.72
Winnebago	Winnebago	Jas. W. Tolman	14	70	17, 18	27	45.5	2.28
Tiskilwa	Bureau	Verry Aldrich	14	72	18	29	49.0	.....
Wyand	do	E. S. & Miss Phelps	10, 14	70	18	26	50.1	3.13
Elmira	Stark	O. A. Blanchard	14	70	18	27	47.3	1.88
Peoria	Peoria	Frederick Brendel	14	72	9	34	50.1	1.53
Pekin	Tazewell	J. H. Riblett	14	72	9, 13	30	49.9	1.42
Hoyleton	Washington	J. Ellsworth	3	76	31	29	49.8	1.50
Waverley	Morgan	Timothy Dudley	10, 11	76	31	32	50.1	1.75
Galesburg	Knox	Pf. Wm. Livingston	12	69	18	29	47.1	2.60
Vermont	Fulton .....	.....	11, 14, 26	68	18	31	54.7	2.66
Augusta	Hancock	S. B. Mead, M. D.	14	69	31	31	48.1	2.90
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lips	5	62	25	30	46.1	1.70
Milwaukee	Milwaukee	Carl Winkler	11	60	17	29	46.7	1.55
Do	do	I. A. Lapham, L.L.D.	11, 14	60	17	28	45.7	1.63
Green Bay	Brown	Friedrich Deckner	3	62	17, 18	27	44.7	1.39
Geneva	Walworth	Wm. H. Whiting	14	69	9, 16	39	45.6	.....
Delavan	do	Leveus Eddy	14	70	17	24	43.7	1.74
Waupaca	Waupaca	H. C. Mead	14	68	17, 25	30	45.8	.....
Einbarrass	do	Edw'd E. Breed	4	62	13, 17	22	42.8	1.79
Madison	Dane	Prof. J. W. Sterling .....	.....	.....	.....	.....	.....	.....
Beloit	Rock	Henry D. Porter	14	67	17	26	44.5	1.89

Table showing the range of the thermometer, &c., for October—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	9	60	8	29	42.9	2.13
St. Paul	Ramsay	Rev. A. B. Paterson ..	13	68	16	25	44.9	1.60
New Uln	Brown	Charles Roos	13	74	22	29	47.3	2.34
IOWA.								
Lyons	Clinton	P. J. Farnsworth, M.D.	14	70	13	30	48.6	3.45
Dubuque	Dubuque	Asa Horr, M. D.	14	65	13, 18	30	48.1	2.81
Muscatine	Muscatine	J. P. Walton	14	64	13	26	46.7	3.11
Guttenburg	Clayton	P. Dorweiler	1, 13, 14	62	18	29	46.6	2.40
Monticello	Jones .....	.....	13	67	18	24	43.8	2.55
Independence	Buchanan	D. S. Deering	14	68	18	27	46.0	.....
Do	do	A. C. Wheaton	14	70	13, 18	26	46.1	2.06
Mt. Vernon	Linn	Alonzo Collin	14	63	18	28	46.2	.....
Iowa City	Johnson	Theo. S. Parvin, A. M.	14	68	18	26	47.8	4.55
Fort Madison	Lee	Daniel McCready	2	70	18	29	49.1	3.47
Iowa Falls	Hardin	N. Townsend	3	68	8, 18	32	45.7	4.62
Algona	Kossuth	Dr. & Miss L. McCoy	13	66	31	26	43.0	2.31
MISSOURI.								
St. Louis	St. Louis	Geo. Engelmann	11	73	31	34	51.7	3.15
Allenton	do	Aug. Fendler	11	76	30, 31	25	47.3	2.13
Canton	Lewis	Geo. P. Ray	11, 14	75	31	25	47.3	5.31
Harrisonville	Cass	John Christian	11	78	22	30	52.4	2.81
Easton	Buchanan	P. B. Sibley	11	71	18, 19	29	.....	2.93
KANSAS.								
State Agricult'l Coll.	Riley	H. L. Denison	11	73	22, 29	25	46.0	0.68
Fort Riley	Davis	James H. Pine	11	84	28	28	55.0	.....
NEBRASKA TER.								
Elkhorn	Washington	Miss A. M. J. Bowen ..	13	70	18, 28	26	44.8	.....
Bellevue	Sarpy	Rev. Wm. Hamilton ..	1	71	23, 29	26	46.6	4.23
MISSISSIPPI.								
Natchez	Adams	Robert McCary	1	80	22, 23	34	59.9	4.40
UTAH TERRITORY.								
Great Salt Lake City	Great Salt Lake ..	W. W. Phelps	10	76	27	31	53.5	3.75

OCTOBER, 1864.

Table showing the average temperature and fall of rain (in inches and tenths) for the month of June, in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	A. V. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
		Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	9	48.4	7.0	48.0	4.9	47.0	6.8	47.0	4.7	42.4	1.9	46.6	1.9	48.2	4.74	42.6	3.58
New Hampshire.....	3	50.9	9.2	47.4	2.8	47.1	6.6	45.3	6.3	41.0	1.9	46.2	5.3	46.2	3.74	45.5	4.50
Vermont.....	4	46.7	6.0	46.0	2.1	45.6	5.2	47.6	4.1	41.2	1.7	45.4	3.8	49.5	3.86	44.6	4.79
Massachusetts.....	12	47.4	9.3	50.6	2.4	49.6	4.1	52.2	3.1	43.4	2.2	49.9	4.2	52.3	3.13	49.2	3.09
Rhode Island.....	1					50.5	2.9	51.2	2.8	48.0	2.6	50.9	2.8	51.4	2.97		
Connecticut.....	4	52.3	10.0	50.9	1.8	51.3	3.3	53.3	3.0	46.8	1.4	50.9	4.1	50.7	4.25	45.9	3.80
New York.....	17	49.2	5.0	49.1	1.8	48.4	4.9	52.8	3.1	46.1	1.6	49.1	3.3	49.0	3.43	48.0	4.47
New Jersey.....	4	51.8	4.6	52.8	1.4	55.2	3.5	55.2	1.6	47.5	2.7	52.5	2.8	54.1	4.52	51.1	1.98
Pennsylvania.....	19	50.6	3.6	51.3	1.7	52.1	3.0	55.9	2.3	48.7	1.8	51.7	3.2	50.7	4.96	50.3	2.63
Delaware.....	1	51.7				56.3	3.8	62.2	2.6		3.3	56.7	3.2			52.3	1.80
Maryland.....	4	52.0	3.8	53.8	3.1	54.2	2.4	56.8	3.0	50.4	2.4	53.4	2.9	55.6	3.21	52.2	2.35
District of Columbia.....	1	53.9	3.5	54.8	1.8	54.6	1.9	58.4	2.5	51.7	2.5	51.7	2.5	54.1	5.02		
South Carolina.....	2	62.6	0.8	62.1	3.6	61.9	1.5	68.0	1.6	66.9	0.6	64.3	1.4			64.2	2.70
Tennessee.....	25	54.7	1.2	58.5	2.6	56.9	2.2	62.2	3.2	55.7	1.3	57.6	1.9				
Kentucky.....	4	53.2	1.9	56.6	1.8	53.5	4.5	55.5	3.5	52.9	2.2	51.0	2.9	51.0	5.89	51.3	3.52
Ohio.....	26	50.4	2.8	53.1	1.7	49.7	2.1	51.1	3.1	45.5	2.8	51.0	2.8	48.0	3.18	49.4	2.66
Michigan.....	7	46.4	3.5	48.5	2.6	46.2	2.6	55.9	3.6	51.3	2.6	47.5	2.8	45.6	2.34	45.0	1.62
Indiana.....	5	50.9	1.3	53.4	1.5	51.4	2.6	53.4	3.6	48.9	2.0	51.9	2.3	46.9	3.70	47.9	1.73
Illinois.....	14	51.2	2.8	53.7	3.0	50.5	2.2	53.4	3.6	46.9	2.7	51.9	1.6	44.6	3.79	48.5	2.13
Wisconsin.....	6	45.9	2.4	49.3	2.5	46.7	3.1	48.9	3.2	44.7	1.7	47.1	2.6	43.0	2.75	45.1	1.67
Minnesota.....	3			49.6	2.7	46.9	0.8	44.1	1.6	41.7	1.3	45.6	1.6	39.2	1.37	45.0	2.02
Iowa.....	9	47.7	3.1	53.2	6.6	49.2	2.2	51.2	4.6	48.4	0.8	50.0	3.4	42.7	3.66	46.5	3.13
Missouri.....	2	53.9	3.9	60.0	2.2	71.1	1.9	58.6	7.7	54.5	1.8	50.6	3.5	47.6	3.87	49.7	3.27
Nebraska Territory.....	3					48.9	3.9	51.9	6.6	51.6	1.3	51.1	3.7	39.6	0.75	43.7	4.23
Kansas.....	3					56.9	0.4	56.9	6.6	51.3	0.5	53.2	0.9	49.1	1.39	50.5	0.68
California.....	1			53.2	0.2	61.5		50.5	7.6	65.4	0.2	61.4	0.9				

FROST, SNOW, AND ICE.

Cornish, Maine.—October 10.—Ground frozen an inch this morning.

Steuben, Maine.—October 10.—Ground frozen hard this morning. 22d, white frost. 26th, very white frost. 27th, very white frost, ground frozen hard. Ice in a pail of water did not melt through the day. 30th, white frost.

West Waterville, Maine.—October 10.—First general frost to kill potato tops last night. 12th, ice formed last night as thick as window-glass; this is the first ice. 27th, profuse white frost last night.

Lisbon, Maine.—October 1.—Quite severe frost. 9th, 10th, and 11th, heavy frost. 27th, ice an eighth of an inch thick. 30th, ice this morning a quarter of an inch thick.

Cornishville, Maine.—October 10.—Heavy frost last night and ground frozen.

Lee, Maine.—October 9.—First snow of the season at 10 a. m.; melted as it fell. 28th, snowed in the night one inch.

Barnstead, New Hampshire.—October 10.—Ice in the morning half an inch thick; ground frozen an inch.

Stratford, New Hampshire.—October 9.—Ground white with snow this morning. 10th, Mountains white with snow to-day, and the same every day to the end of the month.

Shelburne, New Hampshire.—October 1.—Frost this morning. 9th, snow squalls on the mountains. 10th, ice a sixteenth of an inch thick on puddles. 14th, tops of mountains covered with snow, having an elevation of two thousand feet. 24th, strawberries in blossom, in some places nearly as much so as they are in June. 27th, frost. 30th, ground frozen in the road, half an inch.

Caremont, New Hampshire.—October 9.—Snow squall between 10 and 11 a. m. 10th, the first frost destructive to vegetation; ice three-sixteenths of an inch thick. 12th, a hard frost and freeze, finished what the 10th had left alive. This season has been remarkable for the late date of the first killing frost. This is the third year in which vegetables have been substantially untouched by frost till about the middle of October.

Lewenburgh, Vermont.—October 10.—This morning ice was formed about a quarter of an inch thick, and ploughed land frozen a little. 31st, the first hard frost of the season; ground frozen quite hard. Previous to this the autumn has been remarkable. The linden trees in my yard have leaved out fully the second time, and many leaves came out on an elm. My woodbine has leaved out, and grown two or three inches since first shedding its leaves; many strawberries are in blossom, and some blossoms are on an apple tree. The season had previously been very dry, and though there were no severe frosts, and but little freezing, yet leaves were pretty generally off, and then the warm rain gave everything new life and a great tendency to grow.

Craftsbury, Vermont.—October 1.—This morning occurred the first frost in this locality this season that has touched the top leaves of late planted potatoes. October 9, this morning the ground is white with the first snow; it disappeared before night. October 30, water frozen this morning an eighth of an inch in thickness, the first ice of the season.

West Dennis, Massachusetts.—October 10.—First frost, ice formed where a little water had been left in troughs.

Sandwich, Massachusetts.—October 10.—Heavy white frost this morning. 30th and 31st, white frost.

Mendon, Massachusetts.—October 10.—Ice formed in still water.

Baldwinsville, Massachusetts.—October 13.—Sleet and snow. 20th, ground frozen quite hard this morning.

Worcester, Massachusetts.—October 10, 12, and 22.—Frost.

Topsfield, Massachusetts.—October 10 and 11.—Slight frost. 12th, heavy frost. 19th and 20th, light frost. 22d, heavy frost.

New Bedford, Massachusetts.—October 28.—Leaves of most deciduous trees falling very fast. 31st, most trees stripped of foliage.

Middletown, Connecticut.—October 10.—White frost, the first of any account for the season.

Colebrook, Connecticut.—October 10.—Severe frost, ground slightly frozen. 29th, slight fall of snow in the afternoon.

Wilson, New York.—October 8.—Light freeze last night, the first of the season. 15th, light white frost last night. 26th, heavy white frost; did not freeze very hard. 31st, there has not yet been sufficient frost to kill anything except the tenderest leaves and plants. Many trees and vine leaves are still green.

Skaneateles, New York.—October 8.—Snow at 9 p. m. from the north. October 9, snow fell four inches deep last night; snowing at intervals all day. It was reported that frost and ice occurred on low lands, cannot on inquiry learn that it was so. 15th, first white frost I have seen this season, very slight. 22d and 26th, white frost. October 31 has been unusually wet and disagreeable; grass, this, the 31st, is growing and looks like in June and July. Many apple trees have not lost a leaf apparently, but are as green as midsummer. Grape vines until to-day were as luxuriant as months ago.

Flatbush, New York.—October 10.—Frost last night.

New York, New York.—October 10.—First frost, killing cucumber, squash, and beans, but not tomatoes.

Rochester, New York.—October 9.—Snow last night and this morning, half an inch deep, but melted before noon. Frost on the 14th, hard frost on the 15th.

South Trenton, New York.—October 1.—Frost this morning, doing no damage except on some very low ground. 9th, first snow covering the ground, soon melted. 11th, ice an eighth of an inch thick in pail full of water. 13th, 14th, and 15th, white frost.

Palmyra, N. Y.—October 9.—Roofs of houses and boards white with snow this morning; snowed some during the day. 11th, hard frost last night. The first of the season. 15th, 18th, 20th, 26th, frost.

Moriches, N. Y.—October 10.—The first real frost of the autumn; a very slight frost had been noticed one morning in September, but so slight that it was not recorded.

Theresa, N. Y.—October 1.—A hard frost. 9th, snow at 7 p. m., mostly melted as it fell. 10th, water freezes in dishes standing out. 26th, hard frost, ground frozen for the first time. 30th, a thick white frost.

Jamestown, N. Y.—October 8.—First snow. It fell to the depth of four inches, and would have been considerably deeper had it not melted fast. 10th, heavy frost. 22d, snowed this night, but melted as it fell. A slight snow on the evening of the 31st.

Oneida, N. Y.—October 12.—First frost this morning. 22d, first general frost.

Throg's Neck, N. Y.—October 10, 18.—Heavy white frost. 22d, light white frost.

South Hartford, N. Y.—October 12.—First frost. The mercury at 6 a. m. indicated 30°. It was sufficient to kill all tender vegetation. This is much later in the season than is usual for frost.

Palermo, N. Y.—October 9.—Snow covered the ground this morning to the depth of half an inch; cold and spits of snow through the day. 22d, a slight frost this morning. 26th, first black frost; killed vegetation where it was not under the shade of trees and buildings.

Nichols, N. Y.—October 10.—First killing frost. I never knew autumn to advance so far before without a hard frost.

Baldwinsville, N. Y.—October 8.—Snow at night.

Progress, N. J.—October 10.—First frost, very heavy. 18th, heavy frost.

Burlington N. J.—October 10.—White frost, like a snow; the first frost of the season.

Mount Holly, N. J.—October 10.—Heavy frost this morning, the first of the season. All the tender plants were cut down. Ice was observed in the ditches in the country.

Greenwich, N. J.—October 11.—Heavy frost, and skim ice observed in water in shallow vessels exposed during the night. 15th, heavy frost.

Haddonfield, N. J.—October 10.—A heavy frost. 18th, frost.

Newark, N. J.—On the morning of the 10th the unusual phenomenon was recorded of the first frost and first ice occurring together. On the 18th, 19th, 26th and, perhaps, one or two other mornings, there were white frosts, but on no other occasion did the mercury fall to the freezing point.

Horsham, Penn.—October 10.—A severe frost this morning, killing all tender vegetation, and unusually severe for the first. Heavy frosts followed every morning for a week or more.

Philadelphia, Penn.—October 9.—Night, first hoar frost observed. 10th, early morning, ice formed on the surface of still water in the suburbs.

Fallsington, Penn.—October 9.—A light frost. 10th, heavy frost and ice. 18th, heavy white frost.

Grampton Hills, Penn.—October 8.—At 1.30 p. m., rain and snow for twenty minutes. In evening frost and ice. 10th, 21st, heavy frost.

Harrisburg Penn.—October 26.—White frost.

Berwick, Penn.—October 10.—First frost.

Byberry, Penn.—October 9.—Slight frost on low grounds. 10th, very heavy frost, ice an eighth of an inch thick; sorghum killed. Frost also on the 11th, 15th, 18th, 19th, 20th, and 26th.

Tioga, Penn.—October 9.—A very little snow. 10th, hard frost last night, the first this season. Ice formed half an inch and the ground froze quite hard.

Blairsville, Penn.—October 8.—Fine snow fell, commencing at 3 o'clock p. m. Five inches of snow on the 8th, three inches on the 9th, and four inches on the 12th.

Fleming, Penn.—October 9.—The Alleghany mountains are white with snow this morning. Snow flying during the day. 10th, heavy frost this morning; killed all the unripe vegetables.

Germantown, Penn.—October 10.—Ice this morning an eighth of an inch thick, the only time during the month.

North Whitehall, Penn.—Frost on the 10th, 11th, 18th, 25th.

Connellsville, Penn.—October 9.—Ice this morning. 10th, ground frozen.

Nazareth, Penn.—October 10.—First frost of the season this morning; vegetables frozen. 18th, second frost, quite severe.

Silver Spring, Penn.—October 10.—First frost; killed vegetables.

Canonsburg, Penn.—October 8.—Sleet and snow squall at 5 p. m.

Wilmington, Delaware.—October 10.—The first frost and ice.

Sykesville, Maryland.—October 10.—Heavy frost; thin ice in the valley.

Natchez, Mississippi.—October 10.—Frost this morning, the first of the season. 11th, light frost.

Austinburg, Ohio.—October 8.—Some hail and snow flakes to-day. 10th, ice on water this morning, first freeze this autumn. 14th, slight frost. 15th, hard frost.

New Lisbon, Ohio.—Snow on the 8th and 9th, frost on the 10th, 14th, 15th, 18th to 22d; ice on the 18th and 21st.

Cleveland, Ohio.—October 8.—Rain, hail, and snow at times all day. 14th, slight frost last night.

Kingston, Ohio.—October 8.—Flurries of snow. 10th, 11th, 13th, slight frost. 14th, heavy frost. 22d, snow squall for a few minutes at 7 a. m.

Kelley's Island.—October 8.—A few flakes of snow at two or three different times, mixed with rain. 9th, a thin skim of ice on the head of a barrel standing on end and exposed to a strong current of wind; cucumber vines not wilted, and blossoms as fresh as at any time during the season. Reports from the interior of the island say there was a decided frost in some localities from a quarter to a half a mile from the lake. 21st, slight traces of hoar frost. 22d, ground white with snow, thawing as it falls. 25th, hoar frost.

Urbana, Ohio.—October 8.—Very light dash of snow at 8½ a. m. and at 5 and 6 p. m. 9th, ice; all tender vegetation destroyed.

Hillsboro', Ohio.—October 9.—Heavy frost. 21st, snow at night.

Cincinnati, Ohio.—Frost on the 14th, 18th, 19th, 25th, 29th, 31st.

Portsmouth, Ohio.—October 8.—Frozen rain and snow this p. m. 23d, snowed quite heavy last night.

Westerville, Ohio.—October 14.—Ice this morning, the first noticed this season. 22d, the ground white with snow this morning.

Bethel, Ohio.—October 9.—Black frost; first to injure. 13th, 19th, 25th, 29th, 30th, 31st, heavy white frost. Also, some frost on the 16th and 17th.

Saybrook, Ohio.—October 9.—At 6 a. m. sufficient sleet to give a whitish appearance to boards, fences, &c.; very little on the ground. (Snow said to be a foot deep this morning at Pierpont, about fifteen miles southeast of this place; considerable damage done to fruit trees, &c.) 10th, very light frost on low ground, no damage done. Frost on the 14th, 15th, 17th, 21st, 25th, 26th. Ice on the 15th and 25th.

Milnersville, Ohio.—October 9.—First frost. 10th, heavier frost.

Welshfield, Ohio.—October 8.—The first snow storm of the season; snow fell to the depth of about four inches, but soon melted away. On the morning of the 14th occurred the first frost, but it did little or no harm. Dahlias continued in bloom till the 25th; on the morning of that day the frost was sufficiently severe to destroy them.

Smithville, Ohio.—October 8.—The first snow storm of the season commenced at 8 a. m. and ended at 8 p. m. The snow melted as soon as it reached the earth. 10th, first frost this season that affected vegetation of any account.

Gallipolis, Ohio.—October 9.—First killing frost this morning.

Wooster, Ohio.—October 8.—To-day the first snow fell. It commenced about 10 a. m., and continued occasionally through the day; it melted as fast as it fell. October 10.—This morning occurred the first frost to do any damage to vegetables.

Lebanon, Ohio.—October 9.—First killing frost.

Norwalk, Ohio.—October 9.—First frost. 22d, first snow.

Pontiac, Michigan.—October 8.—Fine snow from daybreak to 9 a. m.; balls at 11 a. m. and 4 p. m. 9th, thermometer 26° at 6 a. m.; ice a quarter of an inch thick; ground frozen half an inch; apples not injured. 11th, 13th, 14th, 17th, 20th, 21st, and 25th, frost.

Oshkemo, Michigan.—October 9.—11th, 13th, 23d, and 25th, frost.

Garlick, Michigan.—Snow and rain from October 6th, 9 p. m., to October 7th, 9 p. m.

Newcastle, Indiana.—October 8.—Small flakes of snow occasionally all day. 9th, 12th, and 14th, heavy frost. 21st and 22d, snow nearly an inch and a half.

New Albany.—October 7 and 8.—White frost.

Spiceland, Indiana.—October 8.—A few small snow flakes about 1½ p. m. 21st, a little fine snow falling in the afternoon; fast and heavy at night; half an inch deep at 9 p. m., and doubtless considerable melted as it fell. 22d, snow three inches and seven-tenths deep this morning; about all melted off by night.

Rensselaer, Indiana.—October 9 and 11.—Very heavy frost, with ice; on the 9th the ice was a quarter of an inch thick.

Elmira, Illinois.—October 8.—Ground frozen a little, for the first time this season. 20th, first snow, ground quite white.

Riley, Illinois.—October 9.—Thermometer 25° at daylight; ground frozen. 12th, heavy frost. 13th, frost. 17th, ground frozen, and some ice formed in the creek. 21st, rain and snow from 2 to 9 p. m.; snow melted as it fell.

Hoylton, Illinois.—October 9.—Hard frost.

Waverley, Illinois.—October 21.—First appearance of snow, a light fall.

Ottawa, Illinois.—October 8, 9, and 11.—Frost. 13th, hard frost. 18th, hard frost; ground (where saturated with moisture) frozen a quarter of inch. 19th, frost.

Wyandot, Illinois.—Frost on the 11th, and frequently afterwards. Ice on the 9th, 13th, and 18th. Three-quarters of an inch of snow on the 21st.

Tiskilwa, Illinois.—October 9.—Hard white frost; ice formed a quarter of an inch thick.

Manchester, Illinois.—October 10.—Hard frost this morning. 15th, hoar frost this morning.

Winnebago, Illinois.—October 8.—Frost. 9th, severe frost, first of sufficient severity to kill tomatoes, beans, &c.

Pekin, Illinois.—October 9.—First heavy frost; one hundred and seventy-one days since the last heavy frost. Intervals of slight frosts one hundred and thirty days.

Peoria, Illinois.—Latest frost in spring, April 20th; first frost in autumn, October 9th.

Augusta, Illinois.—October 9.—First frost to kill tender vines. 13th, light frost. 20th, first snow; fell about a quarter of an inch.

Wyandot, Illinois.—October 1.—Heavy frost, with ice, on the 1st, and on several subsequent days. On the 5th, ground frozen a quarter of an inch. On the 11th a little round snow scattered over the ground.

Canton, Missouri.—October 9.—Hard frost. 10th, light frost.

Harrisonville, Missouri.—Light frost every morning from the 6th to the 12th. 16th, most of the tender vines killed. 20th, threatening snow in the afternoon; a little light sleet about 6 p. m. 22d, a sharp frost this morning; ice on still water about the thickness of writing paper.

Embarrass, Wisconsin.—October 1.—Hard frost on the 1st day of October, and very often through the month. No snow recorded.

Bloomfield, Wisconsin.—October 9.—First ice formed; tomato vines entirely destroyed. No snow mentioned.

Green Bay, Wisconsin.—No snow mentioned.

Milwaukee, Wisconsin.—October 8 and 9.—Ice in the morning. 11th, heavy frost. No snow mentioned.

Beloit, Wisconsin.—No snow recorded.

Delavan, Wisconsin.—October 21.—Slight snow, with rain, from 11.15 a. m. to 12 m.

Manitowoc, Wisconsin.—No snow recorded.

New Ulm, Minnesota.—October 8.—Ice, the first this autumn; in some places from an eighth to a quarter of an inch thick; melted about 9 a. m.

St. Paul, Minnesota.—October 17.—A little snow from 5 to 7 a. m.

Lyons, Iowa.—October 5.—Hard frost this morning, enough to kill vines and tomatoes. 8th, frost. An inch and a half of snow fell on the 20th and 21st.

Spring Grove, Iowa.—October 13.—A very white frost and freeze last night. 20th, rain and snow.

Algona, Iowa.—October 19.—Snowed one inch this night.

Independence, Iowa.—October 20.—Snowed half an inch.

Monticello, Iowa.—October 20.—First and only snow this month. It was very wet as it fell, between the showers of rain.

Independence, Iowa.—October 8.—Heavy frost. 11th and 12th, frost. 13th, heavy frost. 20th, commenced snowing at 4 p. m.; changed to rain at 8 p. m.

Guttenburg, Iowa.—Frost from the 8th to the 13th, except on the 11th. Ice on the 18th a third of an inch thick.

Muscatine, Iowa.—October 8.—Light frost. 9th, frost last night enough to kill tomato vines, for the first time this autumn. Ice formed a quarter of an inch thick. 21st, a little snow, the first this season.

Dubuque, Iowa.—October 8.—Frost this morning. 9th, ice quarter of an inch thick.

Iowa City, Iowa.—October 9.—Hard frost, and first ice, a fourth of an inch thick. 21st, first snow, an inch deep.

Fort Riley, Kansas.—October 8.—First frost of the season.—20th, first snow, not measurable.

Manhattan, Kansas.—October 6.—Frost on the low lands. 8th, frost. 20th, light snow, eight hundredths of an inch.

Belleue, Nebraska.—October 20.—Snow from 1 a. m. to 9 p. m. It melted fast, but covered the ground to the depth of about three inches. If it had not melted it would have measured six or eight inches, perhaps ten.

Richland, Nebraska.—October 8.—Heavy white frost and ice, ground slightly frozen. 9th, a little white frost. 15th, ice. 16th, a little white frost and ice. 20th, snow from before day till in the night; one inch of snow on the ground at 7 a. m, melting through the day. 22d, heavy white frost, ground stiffened. 24th, 28th, 29th, 30th, white frost.

Great Salt Lake City, Utah.—October 31.—The autumn has been dry, with very little frost or snow, and the temperature more even than usual.

NOVEMBER 6, 1864.

Table showing the highest and lowest range of the thermometer, with dates prefixed, the mean temperature, and amount of rain, (in inches and tenths,) for November, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
				°		°	°	In.
Steuben.....	Washington.....	J. D. Parker.....	9, 10	54	24	18	37.2	6.20
Lee.....	Penobscot.....	Edwin Pitman.....	10	58	17, 24	16	36.2	4.65
West Waterville.....	Kennebec.....	B. F. Wilbur.....	10	58	17	18	35.8	4.85
Gardiner.....	.....do.....	Rev. F. Gardiner.....	10	61	17	17	37.8	5.77
Lisbon.....	Androscoggin.....	Asa P. Moore.....	10	60	17	13	26.8	7.09
Cornish.....	York.....	Silas West.....	10	58	17	14	33.6	5.70
Cornishville.....	.....do.....	G. W. Guptill.....	10	62	24	18	36.2	6.36
NEW HAMPSHIRE.								
Stratford.....	Coos.....	Branch Brown.....	10	60	24	12	32.3	3.78
Shelburne.....	Sullivan.....	Fletcher Odell.....	10	60	3	16	35.8	.....
Claremont.....	.....do.....	Stephen O. Mead.....	9	65	17	15	37.6	.....
VERMONT.								
Lunenburg.....	Essex.....	Hiram A. Cutting.....	10	55	18, 24	15	33.9	3.70
Craftsbury.....	Orleans.....	Jas. A. Paddock.....	9	58	24	16	32.0	4.05
Middlebury.....	Addison.....	H. A. Sheldon.....	12	65	24	19	38.9	2.22
MASSACHUSETTS.								
Sandwich.....	Barnstable.....	N. Barrows, M. D.....	30	68	24	22	42.6	4.31
Topsfield.....	Essex.....	A. M. Merriam.....	9	66	15, 17	24	43.0	3.83
Newbury.....	.....do.....	Jno. H. Caldwell.....	9, 10	65	24	19	.....	.....
New Bedford.....	Bristol.....	Samuel Rodman.....	30	69	24	24	42.5	4.08
State Lunatic Hosp'l.....	Worcester.....	F. H. Rice.....	9	62	17	18	41.7	4.81
Mendon.....	.....do.....	Jno. G. Metcalf.....	10	63	17	19	40.7	.....
Baldwinsville.....	.....do.....	Rev. E. Dewhurst.....	30	59	17, 24	13	33.7	4.92
Amherst.....	Hampshire.....	Prof. E. S. Snell.....	9	61	17	11	38.0	6.20
Springfield.....	Hampden.....	J. Weatherhead.....	30	68	15, 17	10	38.3	5.16
Westfield.....	.....do.....	Rev. E. Davis.....	30	65	17	15	38.4	5.23
Williams' College.....	Berkshire.....	Prof. A. Hopkins.....	10	64	17	12	37.0	4.17
Richmond.....	.....do.....	Wm. Bacon.....	9	68	16	14	37.1	.....
CONNECTICUT.								
Pomfret.....	Windham.....	Rev. D. Hunt.....	29	60	24	20	39.3	5.47
Columbia.....	Tolland.....	Wm. H. Yeomans.....	30	72	17, 24	20	41.9	.....
Middletown.....	Middlesex.....	Prof. John Johnston.....	30	68	17	18	41.3	4.13
Colebrook.....	Litchfield.....	Charlotte Rockwell.....	9	61	15, 17	12	37.3	.....
NEW YORK.								
Moriches.....	Suffolk.....	Mr. & Miss N. Smith.....	30	72	15, 24	23	46.0	6.48
South Hartford.....	Washington.....	G. M. Ingalsbe.....	9	68	15, 17	10	39.4	5.10
Fishkill.....	Dutchess.....	Wm. H. Denning.....	9, 10	63	24	22	41.7	3.76
Garrison's.....	Putnam.....	Thos. B. Arden.....	10	65	24	20	39.8	4.41
White Plains.....	West Chester.....	Oliver R. Willis.....	30	67	24	20	42.2	.....

Table showing the range of the thermometer, &c., for November—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
NEW YORK—Cont'd.								
Throg's Neck.....	West Chester.....	F. M. Rogers.....	30	68	24	24	44.6	3.88
Deaf and Dumb Inst.	New York.....	Prof. O. W. Morris..	30	70	24	26	46.9	5.16
St. Xavier's College.	do.....	Rev. John M. Aubier	30	68	24	25	44.7	4.51
Flatbush.....	King's.....	Eli T. Mack.....	30	66	15	23	43.9	4.82
Newbury.....	Orange.....	Jas. H. Gardiner....	10	67	16, 24	28	42.0	.....
Schenectady.....	Schenectady.....	Harmon V. Swart....	9	64	15, 17	18	37.2	.....
Gouverneur.....	St. Lawrence.....	Cyrus H. Russell....	9	63	24	2	33.8	5.78
South Trenton.....	Oneida.....	Storrs Barrows.....						2.13
Theresa.....	Jefferson.....	S. O. Gregory.....	9	64	24	13	35.2	5.42
Oswego.....	Oswego.....	Wm. S. Malcolm.....	9	66	24	20	38.2	4.44
Palermo.....	do.....	E. B. Bartlett.....	9	66	24	14	35.7	5.90
Skaneateles.....	Onondaga.....	W. M. Beauchamp....	9	64	24	20	36.5	.....
Baldwinsville.....	do.....	John Bowman.....	9	64	24	20	36.6	.....
Auburn.....	Cayuga.....	John B. Dill.....	9	70	24	20	39.5	.....
Nichols.....	Tioga.....	Robert Howell.....	9	66	24	16	39.0	.....
Palmyra.....	Wayne.....	Stephen Hyde.....	9	67	23, 24	27	41.5	.....
Geneva.....	Ontario.....	Rev. W. D. Wilson....	9	65	24	22	38.8	2.44
Rochester.....	Monroe.....	Prof. C. Dewey.....	9	68	23	20	38.5	2.66
Wilson.....	Niagara.....	E. S. Holmes, D. D. S	9	67	16	23	39.0	.....
Buffalo.....	Erie.....	Wm. Ives.....	9	66	16	21	38.5	3.48
Jamestown.....	Chautauqua.....	Rev. S. W. Roe, M. D	9	65	23	12	37.4	3.80
NEW JERSEY.								
Newark.....	Essex.....	W. A. Whitehead....	30	67	24	21	42.2	3.95
New Brunswick.....	Middlesex.....	G. W. Thompson.....	9	68	24	23	.....	.....
Burlington.....	Burlington.....	Jno. C. Deacon.....	9	67	24	18	42.8	4.00
Progress.....	do.....	Thos. J. Beans.....	9	68	24	18	42.5	4.06
Mount Holly.....	do.....	M. J. Rhees, M. D....	9	70	24	21	44.4	.....
Haddonfield.....	Camden.....	Jas. S. Lippincott....	9	71	24	19	43.6	3.53
Greenwich.....	Cumberland.....	R. C. Sheppard.....	9	61	24	17	39.8	3.10
PENNSYLVANIA.								
Fallsington.....	Bucks.....	Ebenezer Hance.....	9, 30	68	24	22	43.5	3.20
Philadelphia.....	Philadelphia.....	Pf. J. A. Kirkpatrick	30	69	24	25	45.0	4.07
Germantown.....	do.....	Thos. Meehan.....	10	70	23, 25	22	.....	.....
Moorland.....	Montgomery.....	Anna Spencer.....	9	66	24	20	42.5	4.97
Nazareth.....	Northampton.....	L. E. Kicksecker....	9	65	24	22	40.3	.....
North Whitehall.....	Lehigh.....	Edward Kohler.....	30	67	24	19	41.7	.....
West Chester.....	Chester.....	Pfs. Clark & Aldrich.	30	69	23	21	45.3	.....
Mount Joy.....	Lancaster.....	J. R. Hoffer.....	9	70	24	23	46.1	2.35
Silver Spring.....	do.....	H. G. Bruckhart....	9	68	24, 25	21	42.0	.....
Berwick.....	Columbia.....	John Eggert.....	9	68	24	19	42.1	2.04
Harrisburg.....	Dauphin.....	John Heisely, M. D..	9	68	24	26	43.8	2.51
Tioga.....	Tioga.....	E. T. Bentley.....	9	71	24	16	40.0	2.05
Fleming.....	Center.....	Samuel Brugger.....	9	69	23, 24	20	38.6	2.69
Pennsville.....	Clearfield.....	Elisha Fenton.....	9	65	23	9	36.2	3.96
Blairsville.....	Indiana.....	W. R. Boyers.....	9	76	23, 25	15	42.0	6.13
Connellsville.....	Fayette.....	John Taylor.....	9	78	23	14	41.9	.....
Canonsburg.....	Washington.....	Rev. Wm. Smith, D. D.	9	70	23	11	39.8	3.9
DELAWARE.								
Wilmington.....	New Castle.....	U. D. Hedges, M. D..	9, 30	68	24	20	43.9	4.80

Table showing the range of the thermometer for November, &c.—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
DIST. OF COLUMBIA.								
Washington.....	Washington.....	Smithsonian Inst'n..	30	69	24, 25	25	44.7	3.51
MARYLAND.								
Annapolis.....	Anne Arundel....	Wm. R. Goodman..	30	68	24	22	45.8	3.66
St. Mary's.....	St. Mary's.....	Rev. J. Stephenson..	30	72	24	24	48.8	2.30
Sykesville.....	Carroll.....	Miss H. M. Baer....	29	69	25	15	42.1	3.50
Ellicott's Mills..	Howard.....	Philip Tabb.....	9	68	23	18	42.2	.....
SOUTH CAROLINA.								
Hilton Head.....	Beaufort.....	Capt. Chas. R. Suter	9	75	24	28	58.2	2.76
Beaufort.....	do.....	M. M. Marsh, M. D.	18	80	23	24	57.1	3.24
MISSISSIPPI.								
Natchez.....	Adams.....	Robert McCary.....	8	80	23	20	56.2	9.77
KENTUCKY.								
Louisville.....	Jefferson.....	Mrs. L. Young.....	29	72	23	12	45.1	6.30
OHIO.								
Austinburg.....	Ashtabula.....	E. D. Winchester....	9, 29	66	23	12	38.9	3.55
Saybrook.....	do.....	James B. Fraser....	29	68	23	16	40.1	3.15
New Lisbon.....	Columbiana....	J. F. Benner.....	9	72	23	14	42.6	1.63
East Fairfield....	do.....	S. B. McMillan.....	9	68	23	17	39.4	3.23
Staubenville....	Jefferson.....	R. Marsh.....		71		18		3.65
Welshfield.....	Geauga.....	B. F. Abell, A. M....	9	66	23	15	39.1	4.41
Milnersville....	Guernsey.....	Rev. D. Thompson....	9	74	22	14	42.3	2.30
Cleveland.....	Cayuhoga.....	Mr. and Mrs. G. Hyde	9	71	23	18	42.6	3.51
Cayuhoga Falls..	Summit.....	D. M. Rankin.....	9	72	23	16		3.63
Smithville.....	Wayne.....	J. H. Myers.....	9	70	23	14	41.3	.....
Wooster.....	do.....	Martin Winger.....	29	71	23	12	40.5	.....
Gallipolis.....	Gallia.....	A. P. Rogers.....	9	71	23	14	44.1	3.60
Kelley's Island..	Erie.....	Geo. C. Huntington	9	65	23	18	41.0	4.43
Norwalk.....	Huron.....	Rev. A. Newton.....	29	68	23	14	40.4	2.58
Westerville.....	Franklin.....	Pf. H. A. Thompson..	9	70	23	12	42.9	2.55
Kingston.....	Ross.....	Prof. John Haywood	9	75	23	14	42.2	2.92
Portsmouth.....	Scioto.....	L. Engelbrecht.....	9	76	23	19	45.2	4.60
Urbana.....	Champaign....	Pf. M. G. Williams..	9, 29	68	23	10	41.1	3.53
Hillsborough....	Highland.....	J. McD. Mathews....	9	70	23	11	44.3	3.78
Ripley.....	Brown.....	Dr. G. Bambach....	9, 29	71	23	16	45.6	5.17
Bethel.....	Clermont.....	George W. Crane....	9	71	23, 23	10	36.2	3.56
Eaton.....	Preble.....	Miss Ollittippa Larsh	29	68	23	9	40.6	2.15
Cincinnati.....	Hamilton.....	R. C. Phillips.....	29	72	23	12	47.0	3.36
Do.....	do.....	G. W. Harper.....	29	71	23	13	43.6	3.40
College Hill.....	do.....	Isaiah H. Wilson....	9	70	23	12	45.3	3.80
Do.....	do.....	John W. Hammitt....	9	70	23	10	42.9	.....
MICHIGAN.								
Pontiac.....	Oakland.....	James A. Weeks.....	29	65	22	20	36.9	.....
Monroe.....	Monroe.....	Miss F. E. Whelpley	29	67	23	15	38.7	2.55
State Agr'l College..	Ingham.....	Prof. R. C. Kedzie..	29	65	22	17	37.9	4.12
Garlick.....	Ontonagon.....	Edwin Ellis.....	28	52	23, 23	8	29.9	.....

Table showing the range of the thermometer for November, &c.—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
INDIANA.								
Spiceland.....	Henry.....	Wm. Dawson.....	29	70	23	8	40.4	6.00
New Castle.....	do.....	Thos. B. Redding...	29	69	23	7	38.5	4.32
South Bend.....	St. Joseph.....	R. Burroughs.....	29	68	23	0	37.6	6.34
Indianapolis.....	Marion.....	W. W. Butterfield...	29	72	23	12	41.2	.....
Do.....	do.....	Royal Mayhew.....	29	72	23	11	41.5	4.34
Rensselaer.....	Jasper.....	Dr. J. H. Loughridge	29	68	23	10	37.3	9.05
New Harmony.....	Posey.....	Jno. Chappellsmith..	29	72	22	18	45.3	3.83
Vevay.....	Switzerland.....	Chas G. Boerner....	29	72	23	18	45.8	.....
ILLINOIS.								
Chicago.....	Cook.....	Samuel Brookes.....	29	66	23	7	32.7	.....
Riley.....	McHenry.....	E. Babcock.....	29	63	22	7	34.3	3.75
Ottawa.....	La Salle.....	Mrs. E. H. Merwin...	29	70	22	3	36.3	3.29
Winnebago.....	Winnebago.....	James W. Tolman....	29	62	22	6	33.6	2.27
Wyanet.....	Bureau.....	E. S. and Miss Phelps	29	70	21	5	38.4	2.78
Tiskilwa.....	do.....	Verry Aldrich.....	28	64	22	10	38.2	.....
Elmira.....	Stark.....	O. A. Blanchard.....	29	71	22	6	37.5	2.36
Hennepin.....	Putnam.....	Smiley Shepherd....	29	70	.....	22	37.1	.....
Peoria.....	Peoria.....	Frederick Brendel...	29	74	22	11	40.1	3.82
Pekin.....	Tazewell.....	J. H. Riblett.....	29	71	22	12	39.1	4.34
Hoyleton.....	Washington.....	J. Ellsworth.....	8, 29	74	22	10	42.7	.....
Waverley.....	Morgan.....	Timothy Dudley.....	29	73	22	11	40.2	6.40
Highland.....	Madison.....	Ad. F. Bandelier.....	.....	.....	.....	.....	.....	.....
Galesburg.....	Knox.....	Pf. Wm. Livingston..	19	67	22	7	34.4	2.90
Manchester.....	Scott.....	Dr. J. & Miss Grant..	29	73	22	8	40.1	3.67
Augusta.....	Hancock.....	S. B. Mead, M. D....	29	70	22	6	38.1	3.88
WISCONSIN.								
Manitowoc.....	Manitowoc.....	Jacob Lups.....	28	59	23	3	35.6	2.77
Milwaukee.....	Milwaukee.....	I. A. Lapham, LL. D.	20	60	23	3	32.1	2.61
Do.....	do.....	Carl Winkler.....	29	61	23	5	35.9	3.27
Green Bay.....	Brown.....	Friedrich Deckner...	28	52	23	— 3	32.4	3.47
Geneva.....	Walworth.....	Wm. H. Whiting....	29	58	22, 23	10	34.2	.....
Delavan.....	do.....	Leveus Eddy.....	29	58	22	6	33.3	1.74
Waupaca.....	Waupaca.....	H. C. Mead.....	29, 30	50	23	1	32.4	.....
Embarrass.....	do.....	Edward E. Breed....	29	49	23	— 2	30.0	4.16
Beloit.....	Rock.....	Henry D. Porter.....	29	60	22	5	33.4	4.00
Baraboo.....	Sauk.....	M. C. Wait.....	27	68	22	4	34.2	.....
New Holstein.....	Calumet.....	J. Hachez.....	28	62	23	— 1	32.3	2.30
MINNESOTA.								
Beaver Bay.....	Lake.....	C. Wieland.....	27	47	22	0	30.9	0.92
Ripley.....	do.....	Samuel Wilder.....	3	50	22	— 10	26.9	0.60
New Ulna.....	Brown.....	Charles Reos.....	28	57	22	— 5	32.1	1.56
Minneapolis.....	Hennepin.....	Wm. Cheney.....	28	53	22	— 2	29.9	.....
IOWA.								
Lyons.....	Clinton.....	P. J. Farnsworth, M.D.	28	62	22	8	35.6	2.80
Muscatine.....	Muscatine.....	J. P. Walton.....	28	64	22	5	34.7	2.54
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	29	57	22	4	34.1	2.37

Table showing the range of the thermometer for November, &c.—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
IOWA—Continued.								
Guttenburg.....	Clayton.....	Philip Dorweiler.....	27, 28, 29	52	22	4	31.7	3.70
Monticello.....	Jones.....	Chauncey Mead.....	29	56	22	0	28.4	2.57
Independence.....	Buchanan.....	D. S. Deering.....	29	58	22	— 4	32.5	.....
Do.....	do.....	A. C. Wheaton.....	30	57	22	— 1	32.2	3.10
Iowa City.....	Johnson.....	T. S. Parvin, A. M.....	28	58	22	0	35.8	4.82
Fort Madison.....	Lee.....	Daniel McCreedy.....	29	67	22	4	37.4	2.28
Waterloo.....	Black Hawk.....	T. Steed.....	29	58	22, 23	—18	33.8	.....
Iowa Falls.....	Hardin.....	N. Townsend.....	5	50	21	4	31.0	2.17
Algona.....	Kossuth.....	Dr. F. & Miss McCoy	5, 28	54	22	— 6	29.6	.....
MISSOURI.								
St. Louis.....	St. Louis.....	George Engleman.....	29	76	22	14	44.1	5.25
Allenton.....	St. Louis.....	A. Fendler.....	29	76	22	11	42.6	3.90
Canton.....	Lewis.....	George P. Ray.....	28	70	22	6	38.0	3.28
Harrisonville.....	Cass.....	John Christian.....	27	64	22	4	38.4	3.81
Easton.....	Buchanan.....	P. B. Sibley.....	27	62	22	2	36.0	.....
KANSAS.								
Olatha.....	Johnson.....	W. Beckwith.....	27	64	22	6	.....	5.00
Lawrence.....	Douglas.....	A. N. Fuller.....	27	64	22	1	37.0	.....
Agricultural College	Riley.....	H. L. Denison.....	5, 29	58	22	10	36.6	1.61
Fort Riley.....	Davis.....	James H. Pine.....	25	70	22	10	39.8	1.40
NEBRASKA TER.								
Elkhorn.....	Washington.....	Miss A. M. J. Bowen	5	56	22	1	33.1	.....
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton	5, 6	56	22	3	34.3	1.45
MONTANA TER.								
Fort Laramie.....	.....	Lt. Col. Wm. Collins	12	69	8	1	36.9	.....
UTAH TERRITORY.								
Great Salt Lake City.	Great Salt Lake..	W. W. Phelps.....	11	68	8, 17, } 21, 23 }	25	40.2	1.19

NOVEMBER, 1864.

Table showing the average temperature and fall of rain (in inches and tenths) for the month of November, for each of the years named, and for the five years first named collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Average No. of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Averages for 5 yrs.		Averages, 1863.		Averages, 1864.	
		Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.	Mean temp.	Mean rain.
Maine.....	6	37.1	4.9	35.1	3.1	37.1	3.3	37.1	2.1	35.1	4.7	35.1	6.4	36.9	6.4	36.9	5.80
New Hampshire.....	4	36.4	3.7	34.5	2.6	37.5	2.0	37.5	3.0	34.6	3.1	34.6	2.5	35.2	2.5	35.2	3.53
Vermont.....	4	34.6	1.3	33.5	2.3	35.7	2.3	35.7	2.9	33.8	3.2	33.8	2.5	34.9	3.4	34.9	3.32
Massachusetts.....	13	39.5	4.3	38.5	3.0	40.6	2.4	40.6	2.6	41.3	2.9	40.9	3.0	42.8	3.3	42.8	4.75
Rhode Island.....	1	42.0	3.8	39.4	2.0	42.3	2.4	42.3	2.4	43.3	2.3	43.3	7.5	43.3	7.5	43.3	
Connecticut.....	15	42.6	3.3	40.7	3.5	40.7	3.0	40.7	3.2	41.7	2.6	40.9	3.1	43.1	5.3	43.1	4.80
New York.....	18	39.8	2.0	38.9	2.4	38.2	3.2	38.2	4.2	41.4	2.9	38.9	2.9	42.0	3.6	42.0	4.36
New Jersey.....	4	44.7	2.7	42.3	4.0	42.3	1.4	42.3	4.3	45.3	3.7	42.7	3.2	41.1	2.7	42.6	3.73
Pennsylvania.....	35	44.3	3.0	40.5	2.5	39.7	1.9	38.4	4.3	43.2	2.5	41.2	2.3	43.5	3.6	41.9	3.45
Delaware.....	1	44.5		44.7		47.0		44.4	5.1		3.5	45.2	3.7	46.6	2.7	43.9	4.80
Maryland.....	5	46.5	1.5	43.9	2.3	42.9	1.5	40.3	3.8	45.7	1.7	43.8	2.1	47.0	1.7	44.8	3.15
District of Columbia.....	1	48.3	1.1	44.0	2.2	42.3	1.3	41.5	4.2	48.1	1.6	41.8	2.5				3.00
South Carolina.....	6	59.9	1.4	57.2	3.0	61.8	2.5	49.3	9.8	59.6	2.0	58.1	2.5				
Tennessee.....	1	52.6	4.7	44.3	6.0	45.6	5.7	41.6	2.9	51.7	4.7	47.2	4.8				
Kentucky.....	1	51.4	2.6	43.5	4.1	42.2	2.8	39.9	2.6	48.8	3.0	45.1	3.2				
Ohio.....	16	43.4	5.2	40.1	3.0	36.1	5.7	36.9	3.9	44.0	4.5	40.5	4.5	45.7	3.1	43.1	6.30
Michigan.....	8	45.4	3.2	40.9	3.1	31.7	2.9	34.4	3.7	38.3	3.8	33.9	3.8	42.1	3.2	42.1	3.53
Indiana.....	5	46.2	3.7	34.5	3.0	38.9	5.8	38.8	3.2	45.7	4.2	42.1	4.0	41.3	3.6	41.0	5.65
Illinois.....	14	41.8	2.8	35.0	3.6	33.0	2.7	34.8	3.8	40.8	2.9	37.1	3.2	38.7	1.4	37.5	3.59
Wisconsin.....	10	36.7	2.1	33.7	3.7	29.5	1.6	25.5	2.9	36.4	2.9	28.0	2.7	33.4	4.0	33.3	3.04
Minnesota.....	3	33.1	1.4	25.3	1.4	25.2	2.5	26.8	1.3	38.7	2.0	28.1	1.7	30.5	0.3	30.0	4.63
Iowa.....	8	33.1	3.1	33.5	3.5	30.7	3.5	31.3	3.3	30.9	2.0	31.0	5.2	31.8	2.9	33.1	2.87
Missouri.....	3	47.1	5.2	45.2	4.6	39.1	5.2	37.6	4.9	46.8	5.4	43.4	5.1	40.1	1.3	39.7	4.65
Nebraska Territory.....	3					32.1	1.8	31.0	0.6	37.3	1.2	33.4	1.2	34.3	2.0	33.7	1.45
Kansas.....	3					35.5	2.3	34.3	2.2	45.0	0.7	38.3	2.2	40.6	1.9	37.8	2.67
California.....	3	0.0	5.2		0.7	54.8	2.3	55.5	0.4	53.5	9.0	54.9	9.5				

There were two periods of decided elevation of temperature in November, one on the 9th or 10th, and the other on the last, or next to the last, day of the month; and at some of the stations, especially in Indiana and Illinois, the maximum at the end of the month was higher than had occurred since September. Both these elevations of temperature were sudden, being preceded and followed by low degrees of cold. During the rise in the early part of the month the highest temperature was reached at seven o'clock in the morning, at a number of stations, among them, Cornish, Maine; Worcester, Mass.; Fishkill, New York; Springdale, (near Louisville,) Kentucky; Eaton, Ohio; Pontiac, Michigan; Newcastle, New Harmony, Indianapolis, and Vevay, Indiana. At some other stations, as Williamstown, Mass.; Gouverneur and Skaneateles, New York; Harrisburg and Berwick, Pennsylvania; Rensselaer, Indiana, the highest temperature occurred at 9 p. m.

The following table shows the fall of temperature in the twenty-four hours immediately succeeding the warm morning in the early part of the month. The first two columns give the reading of the thermometer at 7 a. m. of one day, the next two columns the thermometer at 7 a. m. of the next day, and the last column the difference of the two preceding, or the fall of temperature in twenty-four hours. Only those stations are given where the fall was twenty degrees or more at 7 a. m., except Hilton Head, South Carolina, which, though less than twenty degrees, is inserted on account of its being the only station in that part of the country from which a register has been received. The fall of fourteen degrees at this place serves to show that the cause which produced the rise and fall of temperature in the western, middle and New England States, operated also on the southern Atlantic coast. West of Indiana, the stations where the fall was twenty degrees or more, were as follows:

Hoylton,	Illinois,	34° from 7 a. m. of the 9th to 7 a. m. of the 10th.
Peoria,	do.	21° from 2 p. m. of the 8th to 2 p. m. of the 9th.
Manchester,	do.	24° from 2 p. m. of the 8th to 2 p. m. of the 9th.
Pekin,	do.	20° from 2 p. m. of the 8th to 2 p. m. of the 9th.
Waverley,	do.	27° from 2 p. m. of the 8th to 2 p. m. of the 9th.
St. Louis,	Missouri,	32° from 2 p. m. of the 8th to 2 p. m. of the 9th.
Allentown,	do.	40° from 2 p. m. of the 8th to 2 p. m. of the 9th.
Monticello,	Iowa,	20° from 2 p. m. of the 7th to 2 p. m. of the 8th.
Spring Grove,	do.	20° from 9 p. m. of the 7th to 9 p. m. of the 8th.
Bellevue,	Nebraska,	22° from 2 p. m. of the 6th to 2 p. m. of the 7th.

Table showing the fall of temperature in the twenty-four hours immediately succeeding the warm morning in the early part of the month.

Station.	7 a. m.		7 a. m.		Fall of temperature in 24 hours.
	Day.	Temperature.	Day.	Temperature.	
Cornishville, Maine	10	60	11	36	24
Lisbon, Maine	10	55	11	35	20
Lee, Maine	10	58	11	38	20
Gardiner, Maine	10	57	11	37	20
Cornish, Maine	10	58	11	34	24
Stratford, New Hampshire	10	60	11	38	22
Claremont, New Hampshire	10	62	11	42	20
Craftsbury, Vermont	10	58	11	34	24
Newbury, Massachusetts	10	63	11	35	28
Sandwich, Massachusetts	10	63	11	42	21
Topsfield, Massachusetts	10	64	11	44	20
Williamstown, Massachusetts	10	64	11	37	27
Westfield, Massachusetts	10	62	11	37	25
Amherst, Massachusetts	10	60	11	37	23
Mendon, Massachusetts	10	61	11	37	24
Worcester, Massachusetts	10	63	11	38	25
Baldwinsville, Massachusetts	10	58	11	32	26
Pomfret, Connecticut	10	59	11	35	24
Columbia, Connecticut	10	62	11	38	24
Middletown, Connecticut	10	62	11	37	25
Moriches, New York	10	63	11	43	20
Nichols, New York	10	56	11	34	22
South Hartford, New York	10	67	11	41	26
Jamestown, New York	10	63	11	43	20
Schenectady, New York	10	64	11	38	26
Baldwinsville, New York	10	55	11	35	20
Newburg, New York	10	67	11	44	23
Fishkill, New York	10	65	11	39	24
Skaneateles, New York	10	54	11	32	22
Geneva, New York	10	58	11	37	21
Auburn, (St. F. Xavier's College,) New York	10	64	11	38	26
Greenwich, New Jersey	10	58	11	36	22
Mount Holly, New Jersey	10	66	11	42	24
Haddonfield, New Jersey	10	66	11	39	27
New Brunswick, New Jersey	10	66	11	38	28
Burlington, New Jersey	10	64	11	38	26
Progress, New Jersey	10	65	11	39	26
Philadelphia, Pennsylvania	10	65	11	43	22
Fallsington, Pennsylvania	10	64	11	40	24
Horsham, Pennsylvania	10	64	11	37	27
Harrisburg, Pennsylvania	10	66	11	46	20
Nazareth, Pennsylvania	10	65	11	36	29
Silver Spring, Pennsylvania	10	66	11	40	26
North Whitehall, Pennsylvania	10	66	11	38	28
Wilmington, Delaware	10	65	11	39	26
Oakland, Maryland	10	66	11	40	26
St. Mary's City, Maryland	10	64	11	43	21
Sykesville, Maryland	10	65	11	38	27
Annapolis, Maryland	10	66	11	37	29
Hilton Head, South Carolina	10	68	11	54	14
Natchez, Mississippi	9	75	10	38	37
Springdale, Kentucky	9	70	10	40	30
Kingston, Ohio	9	65	10	38	27

Table—Continued.

Station.	7 a. m.		7 a. m.		Fall of temperature in 24 hours.
	Day.	Temperature.	Day.	Temperature.	
Portsmouth, Ohio.....	9	64	10	44	20
Urbana, Ohio.....	9	67	10	39	28
Austinburg, Ohio.....	9	61	10	40	21
New Lisbon, Ohio.....	9	62	10	40	22
Westerville, Ohio.....	9	64	10	37	27
College Hill, Ohio.....	9	65	10	41	24
Ripley, Ohio.....	9	65	10	41	24
Cleveland, Ohio.....	9	66	10	41	25
Cincinnati, (Phillips,) Ohio.....	9	68	10	44	24
Cincinnati, (Harper,) Ohio.....	9	67	10	39	28
Hillsboro', Ohio.....	9	65	10	37	28
Eaton, Ohio.....	9	66	10	36	30
Bethel, Ohio.....	9	66	10	39	27
Saybrook, Ohio.....	9	64	10	40	24
Welshfield, Ohio.....	9	64	10	38	26
Smithville, Ohio.....	9	66	10	40	26
Cuyahoga Falls, Ohio.....	9	66	10	38	28
Wooster, Ohio.....	9	68	10	44	24
Norwalk, Ohio.....	9	62	10	37	25
Milnersville, Ohio.....	9	61	10	36	25
Pontiac, Michigan.....	9	62	10	33	29
Lansing, Michigan.....	9	60	10	34	26
Newcastle, Indiana.....	9	66	10	35	31
New Harmony, Indiana.....	9	72	10	36	36
Spiceland, Indiana.....	9	66	10	33	33
South Bend, Indiana.....	9	55	10	30	25
Indianapolis, (Mayhew,) Indiana.....	9	67	10	34	33
Indianapolis, (Butterfield,) Indiana.....	9	69	10	32	37
Vevay, Indiana.....	9	68	10	42	26
Rensselaer, Indiana.....	9	50	10	28	22

TORNADO AT CHESTER, ILLINOIS.

Below are given a few notes of the weather from Nebraska to Ohio, at the time represented in the preceding table. Further east, all the way to Maine, there was rain, with intermissions from the 7th or 8th to the 10th of the month. At Steuben, Maine, there was a thunder shower on the night of the 9th. The meteorological correspondent of the Boston Traveller, under date of November 5, says: "The low maximum of the thermometer during the last four weeks has been unprecedented here within forty years; it was so low that the temperature of 60° yesterday afternoon was the warmest since October 11, when it was 60½°." On the 9th November the thermometer rose to 67°, which was the highest since the 7th of October. It will be observed that in the region of the Mississippi river a severe storm prevailed, which was very destructive at Chester and Randolph, Illinois, on the Mississippi river, about eighty miles below St. Louis, Missouri.

Bellerue, Nebraska.—Snow from 4 p. m. of the 7th to 2 p. m. of the 9th, twelve inches.

Richland, Nebraska.—Snow from 3 p. m. of the 7th to noon of the 9th, four inches.

Lawrence, Kansas.—November 8.—A rain, accompanied by sleet, falling nearly all day. The rain freezes almost as soon as it touches the ground.

Harrisonville, Missouri.—November 9.—Commenced snowing or sleeting about 7 a. m., and much timber has been broken down by it.

Allentown, Missouri.—November 8.—Thunder and lightning from 3½ to 4 p. m.

St Louis, Missouri.—November 8.—Two thunder storms; the most violent was from midnight of the 8th to 2 a. m. on the 9th.

Guttenberg, Iowa.—On the 6th, 7th, and 8th cold rains fell which formed a crust on trees and fences. On the 9th, at noon, the rain changed to snow, and fell to the depth of about four inches, but the wind carried it away from exposed places, and piled it up behind fences and ravines to about two or three feet deep.

Algona, Iowa.—November 9.—A snow storm from the NW. this forenoon, quite violent.

Waterloo, Iowa.—November 8.—Snow, rain, and freezing, storm from NW. 10th, snowed a little; trees all bent or broken to the ground.

Monticello, Iowa.—The snow of the 9th and 10th caught a large amount of corn in the fields in this part of this state. 15th.—The snow of the 9th and 10th still continues with us, preventing the harvesting of corn up to this date.

Iowa Falls, Iowa.—November 9.—Heavy snow storm. It is not quite so cold as last winter, but the snow is flying so thick as to prevent seeing more than a few rods. The wind blows a strong gale, and is piling the snow in heavy and large drifts.

Iowa City, Iowa.—November 9.—At 11 a. m., after a rain of two days, the barometer fell, and snow, with violent wind, set in from the NW. During the storm the wind veered so as to "box the compass," from the E., SE., S., SW., W., to NW.

Beaver Bay, Minnesota.—November 9.—North wind blew a hurricane at 10 p. m.

Manitowoc, Wisconsin.—November 9.—At 4 p. m. the wind blew with a force of six from NE., and, five minutes later, blew with the same velocity from the SW.; barometer very low.

Beloit, Wisconsin.—November 9.—The lowest observation of the barometer ever made at this station was this afternoon. The wind changed with great rapidity from NE. to S., and then as quickly to NW. Between 12 and 6 p. m. the winds were exceedingly high.

Delavan, Wisconsin.—November 9.—The fall of the barometer was mostly from 11 a. m. to 1 p. m. The wind changed from NE. at 1.15 p. m. and blew a strong gale, first from the S. and afterwards from the W.

Riley, Illinois.—November 9.—Rain all night and this forenoon. At 12 m. the wind changed from NE. to SE. The mercury rose six degrees in half an hour, then fell sixteen degrees in the next hour and a half, during which time the wind went around to the SW., blowing a gale all the time, prostrating fences and blowing the tops from stacks badly. About 4½ p. m. snow fell for half an hour—the first of the season.

Hoylton, Illinois.—November 9.—It commenced raining last night at 6 p. m., and there was a perfect gale through the night, with an abundance of rain and several thunder storms, mostly from the south; one came from the west. At 3 a. m. of the 9th a tornado passed through one mile south of this place, doing considerable damage. The starting point, as near as I can learn, was at or near the town of Chester, on the Mississippi. It destroyed one half of the town and killed twenty or more of the inhabitants. It took a northeast direction, passing a mile south of us. It had been raining for several hours, with a strong south wind. A few minutes before three in the night the wind shifted almost instantly into the west, blowing hard, though quite steady, with torrents of

rain, and very dark. It lasted about ten minutes, when it shifted again into the south, (this was one mile from the track of the tornado.) We had had two or three thunder-showers in the fore part of the night, and it continued to rain till morning, when we began to hear of the destruction it had made. We had no rain for some time before, except a light shower the day before. The tornado struck the end of a house through the middle. It then took up a granary, with one hundred bushels of wheat and one hundred and fifty bushels of oats, without spilling it, carried it several rods, and then scattered it to the four winds. It next came to a poor widow's house, which it took from the ground and whirled it to atoms, carrying some of the timbers forty rods or more. About a mile from the widow's it tore up an orchard by the roots, and struck another house, which it appeared to smash to atoms on its foundation, as though a great weight had fallen upon it. Some light things were carried a distance of four or five miles, in a NE. direction, where it hit the agricultural college and moved it several feet. From here we heard but little from it, until it reached Indiana. The width of the track was about five rods.—*J. Ellsworth.*

Chester, Illinois.—A terrible tornado passed over the town of Chester about 2 o'clock on the morning of the 9th November, resulting in great loss of life and property. Some twelve or fourteen houses were blown down and completely demolished, burying the sleeping inmates in the ruins. The storm seems to have come from the southwest, and passed only over the southern portion of the town.—*Newspaper.*

Sparta, Randolph County, Illinois.—The 8th of November, election day, was very warm. Thermometer, at sunrise, 62 degrees, rising to near 80 degrees. Towards sunset heavy, lowering clouds, in masses gathered, and at 1 o'clock a. m. of the 9th one of the most dreadful tornadoes that ever visited this section of country swept over the county from southwest to northeast, levelling everything that came in its way, trees, barns, houses, churches, killing and wounding a considerable number of persons. It first, in this county, struck the steam ferry-boat on the Mississippi river, at Chester, blowing all but the hull, boilers and engine right up the bluff; then over the county, in the direction named, about a third to half a mile in width, destroying and levelling everything in its course. By the time it reached the central railroad its force seemed to be spent.—*William Addison.*

Winnebago, Illinois.—November 9.—At 4½ p. m. the barometer, corrected, stood at 28.090, the lowest observation on record at this point, being two-tenths of an inch lower than on the 28th December, 1863, and nearly an inch lower than its normal height at this point.

Waverly, Illinois.—November 8.—A thunder storm set in at 5 p. m., and continued with slight intermission through the night. There was not much thunder, lightning, or wind, but an unusual amount of rain fell, measuring full four inches.

Tiskilwa, Illinois.—November 8.—Thunder and lightning between 6 and 7 o'clock this evening in the south and southeast; lightning diffuse.

Ottawa, Illinois.—November 8.—Rain, accompanied by diffuse lightning, and distant thunder.

Ottawa, Illinois.—November 9.—This day witnessed the severest blow we remember ever having experienced in Ottawa. A storm had been raging from the east until this morning, when the wind veered round to the southeast, and for four or five hours blew so strongly that a number of chimneys were thrown down and other damage done.—*Newspaper.*

Spiceland, Indiana.—November 8.—Three inches of rain fell to-day. 9th.—Nearly an inch of rain fell between midnight and day, and nearly an inch about noon. Instruments nearly stationary between 2 and 6 p. m. From 6 to 9 p. m. the barometer rose 22-hundredths of an inch, and the thermometer fell 13 degrees.

Indianapolis, Indiana.—November 8.—Rain, with thunder and lightning, northward from about midnight till morning, and lightning south and southwest about 7 to 9 p. m. of same day, and rain at night. The rain continued till 12½ p. m. of the 9th, on which day the heaviest rain fell.

Newcastle, Indiana.—November 8.—Rain commenced at 3 p. m. and continued nearly all day; lightning diffuse, faint, distant from 6½ to 9 p. m. 9th.—Rained most of last night; heavy showers; thunder and lightning towards day. From 11 a. m. to 11½ a. m. the barometer fell a tenth of an inch; from noon to 1 p. m. a heavy and severe gale, and rain from southwest.

Kingston, Ohio.—November 9.—A very stormy day. More than half the rain which has fallen during the storm beginning on the 6th, and just ended, fell to-day.

Portsmouth, Ohio.—November 9.—Violent winds this p. m.; some damage to shipping.

Westerville, Ohio.—November 9.—There has been a high southwest wind all day, accompanied with rain.

Welshfield, Ohio.—High winds through the nights of the 9th and 10th, followed by snow on the 11th.

Natchez, Mississippi.—November 8.—Morning overcast; 12.30 rain; overcast all the evening; wind very strong from the south all day. 9th.—Morning overcast and rainy; wind suddenly changed from the south to the southwest; very high from that point; noon overcast and wind light.

SNOW STORMS.

An extensive snow storm prevailed about the middle of the month. At Cornish, Maine, 8 inches fell; at Lunenburg, Vt., 5 inches; Williamstown, Mass., 16 inches; Colebrook, Conn., 6 inches; Palermo, N. Y., 6 inches; Newark, N. J., ¼ inch; Fleming, Penn., 1 inch; Cleveland, Ohio, 2 inches; Lansing, Mich., 3½ inches; Rensselaer, Ind., 2¼ inches; Riley, Ill., 4 inches; Waupacca, Wis., 6 inches; Minneapolis, Minn., 4½; Dubuque, Iowa, 1 inch. The stations given are those where the largest amounts are recorded in each State. At many stations, especially at the west, very little snow fell, and at some only rain, and at some neither snow nor rain. Later in the month another general fall of snow and rain is recorded, but less than during the preceding storm. From an official report of Col. Chirington, commanding district of Colorado, published in the newspapers, heavy snows seem to have fallen in that region. Under date of November 29, in Cheyenne county, South Band, Big Sandy, he says: "In the last ten days my command has marched three hundred miles—one hundred of which the snow was two feet deep."

Albuquerque, New Mexico.—November 8.—No mail was received from the States last week, doubtless owing to the obstruction of the road by snow, which is reported to be from a foot and a half to two feet deep east of Santa Fé mountains.—*New Mexico Press, Albuquerque, November 8, 1864.*

Albuquerque, New Mexico.—November 15.—Yesterday morning people hereabout woke up to find the streets very slippery with mud, and the rain falling steadily, though not in torrents, as usual on such occasions. Last Tuesday afternoon, (November 8,) snow flakes fell pretty lively for about twenty minutes, and would have made good sleighing had it not been for contrary causes. However good snow may be in its place, the Sandia mountains have had too much of it for speedy travel. Mr. Subert says the snow was so deep that his wagons were four days coming from Chilili to this place. Further to the north-east the fall of snow must have been very heavy. The travel on the road above and below this place is difficult on account of the mud.—*New Mexico Press, November 15, 1864.*

Albuquerque.—November 22.—A mail has gotten through from Kansas City at last. The cause of detention was deep snow.—*New Mexico Press, November 22, 1864.*

METEORS.

Circulars, together with a map of the stars prepared by a committee of the Connecticut academy of arts and sciences, were distributed among the observers for the purpose of obtaining a full record of such meteors as might be observed on the night of the 13th of November, the period of their anticipated annual appearance in large numbers. But the general cloudiness of the night prevented any extensive observations, and when the sky was partially clear nothing unusual was reported.

AURORA.

On the night of the 19th November an aurora was reported by many observers from New England to west of the Mississippi.

MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

JANUARY

1865.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1865.

MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Washington, January, 1865.

The present report is the first of the year, and since the return to its monthly issue. In making this change, it becomes necessary to say something of the times of its publication.

The return day of the circulars, by which information of the condition of the crops, stock, &c., is communicated, is the 1st day of the month, but it is usually the 18th or 20th before all of them are received. It requires from fifteen to twenty days to have the reports printed, folded, stitched, and trimmed. This time cannot be shortened until the war is over. A monthly report cannot, therefore, be published, with this delay, each month, for the circulars. It often, too, requires a week or more to prepare the tables that are based on the circulars. This time will be required to make up the tables from the general one published in this report relative to the yield per acre of the different crops, and their prices. Hence, often the subject-matter of one report must be extended to the subsequent one, and by not delaying for the returns of circulars in the preparation of the latter, it may be so far hastened as to allow the publication of the two reports within the two months. The time of the publication of the one will be at the end of the month, as this one for January, and of the succeeding one as for February, about the 20th of that month.

The present report may be regarded as indicating the general character of the monthly reports for the present year. The leading article will be strictly an agricultural one, and on that subject, the immediate notice of which circumstances render necessary, so that the farmer, at the present season, may immediately apply the information communicated in the practical operations of the farm. Subjects so considered will not have that completeness found in the essays of the annual report, and, therefore, will not preclude their consideration in the annual volume. Besides the leading article, there will be shorter ones on topics more general, but still connected with the interests of agriculture. There will also be the usual statistical matter, but fuller and more methodically presented than heretofore. The meteorological reports from the Smithsonian Institution will be continued.

The principal article in the present report is on the cultivation of the hop plant, a subject that has attracted much attention on account of the high price hops have commanded during the fall and winter. The statistical information in this article will be interesting to the hop-grower, and to those about to engage in its cultivation there is other information of interest.

The education of the industrial classes is at present engaging much attention on account of the establishment of the industrial colleges provided for by the donation of Congress, now being considered by the several State legislatures. The views of one so well known as Governor Andrew, of Massachusetts, on the education of the industrial classes, which will be found in the second article, will be interesting to all.

The third article will receive the attention of all wool-growers, for the success of Mr. Potter, as stated in his letter, and the inducements to the increase of sheep husbandry in the prospective markets, will encourage every farmer.

The statistical matter is fuller than usual, as the close of the year enabled the full returns to be given of much of the commerce of 1864.

In thus referring to these reports, it will not be out of place to acknowledge my thanks for the many kind notices that have been made of them. Their influence is constantly becoming more general, for the reports of the crops and farm stock are seen to be reliable. The time has passed when the plan adopted by this department for estimating their amounts might be regarded as an experiment only. It has been tested, and however disturbing to agricultural production have been the circumstances of war and the vicissitudes of the seasons, yet the plan, thus tested, has been successful even much beyond the anticipations of the most sanguine. This success both the producer and purchaser see, and from both have I received the commendations referred to. It would be but an unkind return and an affected indifference on my part not to acknowledge my gratification at this expression of approbation. This department had no model by which it could be directed when established, but it was created upon the mere belief that it would promote the greatest interest of the nation—that of agriculture; but the measures by which it could advance these interests were never designated. Under such circumstances, to receive this general approval cannot but be gratifying to me, and the terms in which this commendation has been conveyed to me call for this notice of the kind wishes expressed.

And not less universal has been the approbation given to the annual report for 1863, recently distributed. It is regarded as even superior to the report for 1862, and not a single exception has been taken to any opinion or statement given in it. The care demanded in the selection of contributors, and the knowledge, both agricultural and critical, necessary to render such a volume complete, cannot be understood save by those who from experience know how much of both is essential to success.

ISAAC NEWTON,
Commissioner.

THE HOP PLANT.

Inducements to its cultivation; the soil and manures best adapted to its growth; its enemies and diseases; its cultivation; its picking, drying, and packing.

The heavy taxes on alcoholic liquors point to an increased home production of malt liquors. The present high price of hops is creating inquiry on the subject of hop production. No crop is subject to so many casualties, and none, to avoid or mitigate them, demands as high cultivation. Under such circumstances, and especially in the absence of any article on the cultivation of the hop for several years in the Annual Report of this Department, it becomes necessary to consider it now in the Monthly Report.

In so doing, will be noticed the inducements to its cultivation; the soil and manures best adapted to its growth; its diseases and enemies; its cultivation; its picking, curing, and packing.

1. *Inducements to its cultivation.*—The uncertain nature of this crop has led to a greater fluctuation in prices than of any other farm product.

The following table of the annual range of prices since 1850 will show this:

Years.	Prices.	Years.	Prices.	Years.	Prices.
1850	22 to 60 cents.	1855	4 to 10 cents.	1860	6 to 32 cents.
1851	17 to 47 “	1856	4 to 12 “	1861	13 to 23 “
1852	17 to 40 “	1857	4 to 10 “	1862 .....	.....
1853	22 to 46 “	1858	8 to 18 “	1863	15 to 30 “
1854	5 to 36 “	1859	6 to 25 “	1864	20 to 52 “

These are the New York prices, as given in the Finance Report of the Treasury Department for 1863. They show more the differences in price of different months than of the different qualities of the hop. No other product is so fluctuating. This is attributable to three causes chiefly—the irregular annual production, the irregular foreign demand, and the speculation which these irregularities occasion. The irregularity of the annual production can be seen in the table of this product for New England, prepared for the State Agricultural Society of New Hampshire by W. P. Riddle, and published in the Patent Office Report for 1853. The fluctuations in the amount of the crop from one year to the next range from 25 to 100 per cent.

Mr. Rouse, of Oneida county, New York, referring to this difference, says: “Very much will depend on the season; this year, for instance, has proved to be very unfavorable, the yield being only about one-third of a full crop. One hop-grower of my acquaintance has obtained but 12,000 pounds from grounds which last year produced 32,000; and another has only 4,000, where last year he obtained 16,000. The universal complaint is that the crop has been very light. Taking one season with another, the range of different fields is from 400 to 2,000 pounds to the acre. Instances have indeed occurred occasionally in which the latter quantity has been exceeded, and in one instance an average of near 2,800 pounds was obtained. One thousand pounds per acre may be considered a fair crop; but the general average would, no doubt, fall below that, and would probably be about one pound per hill, or 888 pounds to an acre.”

Such an irregular production necessarily creates speculation, especially so in this crop, as hops cannot be held over for more than a year without much deterioration in their quality.*

* This deterioration is occasioned by the volatile nature of the aroma of the hop. The most compact packing will not retain it, and hence it would be well to institute experiments of the cost and effectiveness of baling with strong hemp-cloth, gummed with Indian-rubber.

The irregularity of the foreign demand is as great, and occasioned by the fact that the hop in England and the continent is even more uncertain than it is here.

The following table shows the number of acres, in hops, in the years named, and the pounds produced. Those years only are given which exhibit the greatest extremes, but even where the annual production is more regular, it is nevertheless very irregular.

Year.	Acres.	Yield per acre.	Year.	Acres.	Yield per acre.
1807	38,218	586 pounds.	1823	41,458	124 pounds.
1808	38,436	1,465 "	1824	43,419	795 "
1809	38,357	360 "	1825	46,718	120 "
1810	38,265	368 "	1826	50,471	1,237 "
1811	38,401	927 "	1839	52,305	911 "
1812	38,700	141 "	1840	44,058	127 "
1822	43,776	1,037 "	1841	45,769	697 "

From 1841 to 1850 the yield was more regular, being about 896 pounds per acre.

A crop so extreme in its annual product necessarily caused an irregular demand on the part of Great Britain for foreign hops. Its imports are seen in the following table.

Import of hops by Great Britain.

Years.	Pounds.	Years.	Pounds.	Years.	Pounds.
1850	725,648	1855	2,762,144	1860	7,718,816
1851	51,744	1856	1,790,544	1861	16,707,712
1852	34,608	1857	2,095,632	1862	14,984,592
1853	4,742,528	1858	1,456,000	1863	16,495,472
1854	13,330,480	1859	248,640	1864*	7,628,768

* For ten months only.

The exports of the United States show a like irregularity. They are as follows:

Exports of hops by the United States.

Years.	Pounds.	Years.	Pounds.	Years.	Pounds.
1850	1,275,455	1855	4,021,816	1860	273,257
1851	110,360	1856	1,048,515	1861	8,835,837
1852	238,008	1857	924,538	1862*	-----
1853	245,647	1858	458,889	1863*	4,415,400
1854	260,026	1859	587,953	1864*	5,081,800

* Estimated at 200 pounds per bale, the returns being in bales.

Here is a great fluctuation, and in 1861 a most extraordinary export. The entire crop of the United States, as returned by the census, was as follows: 1840, 1,238,502 pounds; 1850, 3,497,029 pounds, and in 1860, 11,010,012 pounds. There must have been a most wonderful increase in 1860 and in 1861 of our hop crop, or else we exported in 1861 nearly the entire amount produced.*

* The estimated crop for 1862 is 16,000,000 pounds, and for 1863 and 1864, 13,000,000 pounds each year.

These striking irregularities of production and export fully account for the extreme range of prices. They inculcate this lesson to the hop-grower, that he must expect markets at one time most encouraging, and at another most depressing. But the question is, Does the *average* price of several years justify the increased cultivation of this crop?

In Great Britain the average yield is probably about 750 pounds per acre. Mr. Rouse places it in this country at 888 pounds. He estimates the entire cost of production at about 10 cents a pound, including the picking. This would be about \$88 80 per acre. This cost will be larger or smaller according to the natural fertility of the soil, the cheapness of poles, and the price of labor. But if this estimate is an average one generally, then the hop can be grown for 15 cents per pound in ordinary times and at the usual prices of labor.

2d. *The soil and manures best adapted to its growth.*—These can best be determined by the nature of the plant and its analysis. The roots of the hop penetrate deeply and widely, and are liable to suffer from drought. In a climate of extremes, like ours, this drought must be guarded against, and this can best be done by having a large portion of vegetable matter in the soil, which is a non-conductor of heat, and attracts and retains moisture. It should be broken up deeply, and always kept thoroughly pulverized. It should be deep, that the lower roots may sustain the moisture of the plant in drought, and it should be well pulverized, for in such a condition of the soil air cannot dry it deeply, because it does not crack and admit large amounts of heat, and the subsoil moisture rises higher between fine particles of loose soil. This plant is a great exhauster, both by reason of the thorough summer cultivation demanded, and by what it abstracts from the soil. Analysis shows this; and the following is an English analysis of the hop.

	ANALYSIS OF THE HOP.			OF WHEAT AND WHEAT STRAW.	
	Hops.	Leaves.	Bine.	Wheat.	Straw.
Percentage of ash calculated on dry substance	9.00	21.94	7.28	-----	-----
<i>Composition of the ashes.</i>					
Silica	19.16	22.35	9.99	1.27	65.38
Chloride of sodium	0.74	3.12	2.63	-----	-----
Chloride of potassium	8.96	2.29	15.35	-----	-----
Soda				9.05	0.16
Potash	31.70	13.13	17.60	23.72	13.44
Lime	9.59	30.78	23.91	2.81	6.70
Magnesia	4.80	4.84	3.77	13.03	3.82
Peroxide of iron	0.68	0.19	0.80	-----	-----
Sulphuric acid	5.10	1.89	2.33	0.24	5.82
Phosphoric acid	17.33	9.33	11.69	49.81	3.07
Carbonic acid	1.92	12.04	11.92		
Total	99.98	99.96	99.99		

In this table the analysis of wheat is given also as a comparison, because it is conceded that good wheat lands may be made good hop lands. Silica in larger quantities is taken from the soil by the hop, where the straw of both crops is returned to it. Both have nearly the same amount of potash and soda; but the hop has much more lime and sulphuric acid, and much less magnesia and phosphoric acid. The aggregate pounds per acre do not differ materially in

these crops, estimating the number of pounds of hops at 900 per acre, and of wheat at 15 bushels, equal to 900 pounds.

The chief difference is in silica, lime, and sulphuric acid. Hence it follows that gypsum, or plaster of Paris, would be a beneficial manure for hop grounds, because it is sulphate of lime. It is composed of lime 32.56, sulphuric acid 46.51, water 20.93. Its best mode of application would be on clover after it has commenced its spring growth, for in this way it would add much to the vegetable matter of the soil, as well as to its lime and sulphur. The crop of clover should, of course, be turned under.

In Great Britain it is usual to trench the ground with the spade; here it is an unnecessary expense. "Very deep trenching for hops," says Morton's *Cyclopædia of Agriculture*, a Scotch work, "even when the top soil is not buried deeply, is by no means advisable, provided there be no pan-table or incrustation below." Eighteen inches is usually a sufficient depth. It may be stated as one reason for not burying the surface mould very deeply, that, although the main roots of the hop penetrate to a great depth, yet that the smaller rootlets, with their spongioles, run only just below the surface, and the manuring ingredients are continually washing downwards. We have also pretty good grounds for believing that rich soil buried deeply becomes inert."

If the soil requires manuring and deepening, this should first be done by the gypsum-dressed clover turned under to the depth of ten inches. When broken up to plant the hop roots, it should be subsoiled an additional depth of eight inches. Trenching with the spade is a useless waste of labor where the plough can be used, and hops should not be planted where it cannot; for, as the hop demands a loose, deep soil, it would soon be washed away on hill-sides.

Barn-yard manure should always be applied during the cultivation of the crop, and even before, if the soil is not rich. In Great Britain alluvial soils are regarded as excellent; and clay soils, especially if tenacious, should be thoroughly drained, for a plant so deeply rooted as the hop should not have its lower roots imbedded in standing water.

The situation of the hop-field should be free from heavy winds, as they blow down the poles, but it should be well aired and sunny. The reason of this will be seen when speaking of the disease of mould.

3d. *Enemies and Diseases*.—We have seen how uncertain the hop crop is. This is chiefly owing to its enemies and diseases. In England these are numerous; but here it will not be necessary to notice but one of each—the *aphis*, or *louse*, and the *mould*. They will be noticed at some length, however.

1. *The Aphis*.—The correspondents of this department, in speaking of the injuries received by the hop crop of 1864, describe these insects, so common to many plants, and speak of them as *lice*. The following description of them is given by Mr. Harris:

"The winged plant-lice provide for a succession of their race by stocking the plants with eggs in the autumn. These are hatched in the spring, and the young lice immediately begin to pump up the sap from the tender leaves and shoots, increase rapidly in size, and in a short time come to maturity. In this state it is found that the brood, without a single exception, consists wholly of *females*, which are wingless, but are in a condition immediately to continue their kind. Their young, however, are not hatched from eggs, but are produced alive, and each female may be the mother of *fifteen* or *twenty* young lice in the course of a single day. The plant-lice of this second generation are also wingless females, which grow up and have their young in due time; and thus brood after brood is produced, even to the seventh generation or more, without the appearance or intermixture, throughout the whole season, of a single male. This extraordinary propagation ends in the autumn with a birth of a brood of *males*, which in due time acquire wings, and pair; eggs are then laid by the

females, and with the death of these winged individuals, which soon follows, the race becomes extinct for the season."

The eggs are not destroyed by cold or wet; and drought is favorable for the multiplication of those lice born in the summer, and wet unfavorable. Hence their rapid increase in droughts. The effects of the attack of these lice on the hop-vines is thus described in Morton's *Cyclopædia of Agriculture* :

"When the first attack of these upon the hops is severe, and early in the season, the growth of the plant is commonly stopped in the course of three or four weeks. If the attack be late—that is, about midsummer, or afterward—the bine has then attained so much strength that it struggles on against the blight to its disadvantage, and the result is a total failure of the crop at last; for the leaves fall off, and the fruit-branches being already formed, there is no chance of recovery. At this time and in this condition the stench from the hop plantation is most offensive. In an early blight, however, we have many instances recorded of extraordinary recoveries; for these insects are remarkably susceptible of atmospherical and electrical changes, and on a sudden alteration of the weather we have known them perish by myriads in a night. The condition of a plant is never hopeless, however severe the attack may be, provided there is *time* for it to put forth its lateral or fructifying branches."

The progress and termination of the attack by the lice, when severe, is thus described in the same work.

"Their multiplication is so rapid that the leaves become so thickly covered as scarcely to allow a pin to be thrust between them. They quickly abstract the juices of the bine, so that the leaves assume a sickly brown hue, and curl up, and the bine itself ceases to grow, and falls from the pole, the lice continuing till they perish for want of food; and thus, without the intervention of a favorable change, the crop is destroyed, and the grower may often consider himself fortunate if the plant recover a due amount of vitality to produce a crop in the following year.

"When atmospherical change occurs, the lice die off by thousands in a day. As they die they turn a brown color. The first indication of a favorable change is the clustering of the lice to the extremities of the bines and branches. This fact is well worthy of notice, since, to all but close and accurate observers of the hop plant, the outward appearance is the reverse of a favorable change; for the small leaves and heads of the bines are densely covered with lice. But while the lice are thus gathering in countless myriads at the extremities, apparently threatening the utter destruction of the plant, the large leaves at the bottom of the bine and the leaves of the branches next the stem are becoming clean. At this *clustering* period the lice evidently cease to suck the juices of the plant; for the attentive observer will perceive the bine resuming its erect position, and recommencing its upward growth, though still covered with lice. At this crisis they usually disappear altogether in the course of a week or ten days, *and then the plants should be liberally rewarded, if not lavishly stimulated with manure, there being no danger of over-manuring under such circumstances.*

"The best manure to be employed in these cases is guano, at the rate of 450 to 900 pounds per acre. The ground should be continually stirred, but this stimulus should not be given until it is certain the lice are disappearing."

Injurious insects are much lessened in number by natural enemies. That which is most destructive of these lice is the lady-bug, or, as called in England, the lady-bird. Of these the work just quoted from says :

"They, in the first instance, destroy multitudes of lice, a single one killing eight or ten in as many minutes; and where the lice are not too numerous, the lady-birds will clean the hop plantations. But, generally, the lice have time to deposit some of their young on the under side of the leaves before their enemies attack them, especially if the weather be clouded, when the lady-birds are slug-

gish and inactive. The lice are seldom devoured at this time, but the lady-birds lay their eggs also on the under side of the leaves, usually in clusters of about twenty each. These eggs adhere to the leaves, are yellow in color, and of a long, oval shape; they are soon hatched, and the progeny which creeps forth is the 'black nigger' or 'serpent,' as they are called in the districts. They are ferocious-looking creatures, greatly resembling in shape, though not in size, the lizards of the olden time. As soon as they are hatched they commence the work of destruction upon the lice, which are their peculiar food, as the lice are of their parents, the lady-birds; and if the lice are not extremely numerous, they often succeed in clearing the plant of the vermin, otherwise they devour them until they are literally gorged with food, and then, attaching themselves to the leaves of the hop, after remaining dormant in the larva state, they cast off their outer cuticle, and are transformed into the perfect lady birds, when they again pursue their good work of destroying the enemies of the hop—consuming about thirty lice daily."

We have described the depredations of the lice, and the good work of the lady-bugs, at some length, that the hop-grower might see the necessity of two things—*first*, having the ground in the highest condition as to richness and tillage, that the plant may be enabled to overcome the attack of the lice; and, *second*, that he might see the necessity of preserving the lady-bug, one of the most useful of the beneficial insects. The lice could be destroyed by syringing the vines with whale-oil-soapsuds, but this remedy is too tedious for hop cultivation.

2. *The mould*.—There are various diseases to which common parlance has given this name, but the one now described is the most fatal to the hop. These diseases, like the lice, are parasitic, that is, both exist upon the juices of the hop plant, which, being deprived of them, are blighted. Hence the term *blight* does not designate the *cause*, but the *result* of the attack of the disease or insect. Morton's Cyclopædia of Agriculture thus speaks of the disease now under consideration:

"The mould is a disease rather than a blight. We believe it to be a parasitical vegetable fungus, usually generated in wet seasons and in damp situations. It is of all diseases the most dreaded by the hop-grower, inasmuch as there is no known remedy for it, and as it steadily progresses in its attack, with more or less rapidity, according to the character of the season, till the crop is gathered. It often originates from the negligence and inattention of the cultivator, and thus prevention is better than cure. It is intimately allied to, if it be not precisely the same, as the white mildew which we see in hawthorn hedges, and on rose-bushes, especially if the latter grow in shady situations. When the mould appears to any considerable extent upon the hops so early as the end of June or beginning of July, however luxuriant the vine may then appear, there is no hope of a crop worth picking. Dampness and a want of a free circulation of air and light seem to be the predisposing cause of mould, and thus we often see it emanate from wild hops, which are carelessly allowed to grow in neighboring hedges. As soon as this violent disease appears, it spreads in every direction with astonishing rapidity, diminishing in intensity as the distance increases from the centre of mischief. It is first noticeable upon the upper side of the leaf as a white speck, not larger than a small pins head, the spot increasing in size till it attains the diameter of about one-eighth of an inch; below this white spot, on the *under* side of the leaf, there is a corresponding indentation, which renders this incipient indication of mould unmistakable. From the spots on the surface of the leaf the seeds of this parasitical fungus, as we imagine it to be, are blown in all directions, and the minutest particle of this white dust when it settles on another leaf in a few days becomes a minute speck of mould. Each new spot then propagates the disease, and thus we perceive this vegetable pestilence advances with fearful rapidity of geometrical progression, and if the season be

damp, acre after acre falls a victim to the attack, which often originates from sheer inattention."

Mould spreads fastest in warm, damp weather. It commences near the ground, and therefore great attention ought to be paid to the frequent pulling off of the suckers, as they sprout through the hill in the summer months. Every spotted leaf should be destroyed. And here we now see the necessity of making such selection of the site of the hop plantation as will secure a free access of air and sunlight, for dryness is a check to this disease.

4. *Cultivation*.—Supposing the ground to have been properly prepared for setting out the plants, and that they have been grown one season from the slip, the first step is to determine the number of plants to the acre. The width of the hills, in Great Britain, varies according to the varieties of the hop—the stronger growing ones requiring more room. From six to eight feet square is the customary distances, and in the United States seven feet is the usual distance. The following table shows the number of plants required for the distances named.

6 feet.....	1, 236 plants.
6 feet 6 inches.....	1, 060 "
7 feet.....	888 "
7 feet 6 inches.....	795 "
8 feet.....	695 "

By having a white rag or other conspicuous object on the chain or measuring cord at the distances desired to form the hills, the places to set the stakes will be more readily indicated. These stakes should be of sufficient height to correct the range by.

Male and female plants.—The sexes of the hop plant are not united in the same plant, but some are male and others female. Since the sexual relation of the strawberry plants have been so thoroughly discussed in the United States, the importance of having some male plants in the hop grounds will be generally admitted. The male flower grows in a loose panicle, whilst the female flower is compact, like the cone of the pine tree. Hop seeds produce plants, but as they are like fruit seeds, producing varieties of quite different qualities, the hop plants should be multiplied by slips from a well-known and approved variety.

Although most of American farmers have some knowledge of the importance of having enough male among the female plants to fertilize them, yet this importance is so peculiar in the hop that some special reference to it is necessary.

At the base of each scale or leaf of the female blossom of the hop there is a flower, in which is the germ of the seed. As this seed matures the scales grow larger, and are covered with resinous aromatic balls, called *lupuline*. These are the fine yellow powder of the hop, and contain that bitter principle which renders the hop so valuable in preserving and flavoring malt liquors. This bitter principle is stronger or more delicately flavored in some varieties of the hop than in others, and in proportion as the seed is fully developed. This female blossom is vitalized by the pollen of the male plant. "Though the pollen," says an English writer, "from its extreme lightness, can be wafted to a considerable distance and some seeds in each cone may be so fertilized, yet it would be well to rear a number of the male plants among the others, or along the hedges of the hop gardens, to insure the fertilization of all the seeds. A bushel of hops collected from plants of the fourth year, raised from seed, weighed 36 pounds, there being male plants near; a second instance, where the plants were raised from cuttings, weighed 35 pounds; while a bushel, grown in a garden where the male plants were always eradicated, weighed only 22 pounds. Besides the greater quantity of hops thus obtained, the aroma is much greater (the *lupuline*, on which the aroma depends, is considered by Blanché to be the unappropriated pollen dust which has alighted on the scales of the females) and the strength of the bitter much greater."

On this point, M. Rouse says: "It is necessary that a small number of the male plants should be interspersed among the others, in order to give that energy and vitality to the seed which is essential to the perfection of the crop. If due care is taken in this particular, a seed will be found at the bottom of each petal of the blossom possessed of a most pungent aromatic flavor. Attention to this particular is, indeed, necessary to insure flavor and character to the product of the plant, giving it that fine aromatic bitter which is most desirable, and which it will not otherwise be possessed of; the petal, or leaf of the blossom containing comparatively but little of the astringent quality of the hop. This consideration is one which I apprehend is too frequently overlooked by the inexperienced cultivator, who sometimes rejects the male plants as barren to the great injury of his crop." He recommends one male plant to fifty female.

In selecting the varieties of the hop to plant, two things are regarded in Great Britain—the flavor and the time of maturing. The strong growers are usually the largest bearers, but have not that delicacy of aroma that is found in smaller and less prolific varieties. In large plantations where the picking season should be long, such varieties are selected as will give different times of maturity.

The number and length of the poles.—Each hill should have two poles. In England, the number is determined by the kind of hop. The Farnham Canterbury white bines and the goldings are strong growers, and require large poles—from 14 to 20 feet long. The grape varieties are smaller, and need poles not exceeding 10 to 14 feet in length. The Cyclopædia of Agriculture, as to the number of poles in Great Britain to the hill, says: "When there are about 1,200 hills on an acre, and the poles all 18 feet long and upwards, we should recommend *two* to each hill, with 16 feet poles, every *third* hill to have three; with 14 feet, alternately *two* and *three* poles; with 12 feet poles, *three* to each hill." But in this country, where ground is not so valuable as in England, a lesser number should be used, that more air and sunlight may be allowed, to lessen the evil of mould, and give greater vigor to the plant when held back by the aphids.

The poles should be sharpened with a regular taper, and holes for them made by a heavy crow-bar; and when two are in a hill they should be about a foot apart, the tops inclining somewhat apart, to give more room to each top, and prevent the branches from intertwining. The strongest poles should be selected for the outside, especially for that part of the plantation most exposed to heavy winds.

In the spring the number of bines to each pole is selected. These should not be more than two; but it is best when the wire-worm is apprehended to reserve two more against their depredations, and until danger of them is past.

The bine should be fastened to the poles, as their growth advances, with woollen yarn; and it is best when unravelled from a stocking, as it is more elastic. Women and children can do this work.

As to the cultivation, it may be laid down generally, that what is required by Indian corn should be given to the hop. When the ground is dry enough in the spring, it should be broken up deeply, and followed, from time to time, by the cultivator. Should there be any weeds about the hills, the hoe should be used to destroy them. If the hills have been manured in the fall, it should be forked in in the spring. Be the character of the season what it may, the soil should be kept loose and free from weeds and grass. On the subject of cultivation, both as to implements and the number of ploughings, we commend our readers to the article on Indian corn, published in the Patent Office Report for 1861.

Picking, drying, and packing.—We cannot give better directions on these matters than are contained in the article of Mr. Rouse, in the Patent Office Report for 1853:

"The hops having reached maturity, or nearly so, the operation of picking commences. This, to have the fruit in full perfection, should not be done until it is ripe: at which time the seed will be found to have changed from a bright straw color to a pale brown, and will emit a fragrant smell. With us hops are usually ripe about the 5th of September; but as it is better they should be harvested rather green than be permitted to stand till over-ripe, liable to be injured by the early frosts, and as they cannot all be gathered at once, it is necessary in large fields to commence somewhat earlier—usually about the first of September—in order that the work may be completed in season. The picking is usually done by females. For this purpose girls are frequently engaged several months, and even a whole year, in advance.

"The hops are commonly picked in large boxes, containing from twenty-four to forty bushels. These boxes are divided lengthwise by a thin partition, and then subdivided into quarters. They are raised a little from the ground, and have handles at the ends to facilitate their removal from place to place, as may be desirable. One man and four girls are allowed to each box. Each girl deposits the hops she picks in her own division of the box. An industrious hand can pick twenty bushels in a day without difficulty. It is the business of the man to supply the boxes with poles, which he raises from the ground as needed, cutting the vines about a foot high; to see that the picking is properly done, to remove the empty poles, clear them of the vines, and stack them in a systematic manner. In picking, the hops should be kept free from stems and leaves, and all blasted or immature ones should be rejected. The boxes should be emptied at least once a day; at all events, no hops should be left in them over night. It is of great consequence that they should be dried as soon as possible after they are picked, as they are quite liable, if left together in any quantity, to heat and spoil in a few hours. They may be most conveniently conveyed from the field to the dry-house in large sacks.

"*Drying*.—The hop-house, or kiln, should be of a size proportionate to the quantity of hops to be cured, so that they may not accumulate on hand. To avoid this, it will generally be necessary to keep the kiln heated both day and night. It is commonly built of an oblong form, and of two stories, the lower part being occupied by the kiln and the press-room and the upper part by the drying-floor over the kiln, and by a room of about an equal size for storing the dried hops, which will of course be over the press-room. Kilns are sometimes built of bricks or stone, of a circular form, with a round opening in the apex of the roof, surmounted by a movable cowl, or swinging ventilator, to enable the vapor of the drying hops to escape easily. If the building is of wood, the sides of the kiln should be lined with brick-work, or thoroughly lathed and plastered. It is found to be most convenient and economical to heat it with stoves, from two to four of which will be necessary, according to the size of the kiln. The drying-floor should be ten feet from the ground, that there may be no danger of scorching the hops in drying. This floor is formed of slats about one and a half inch in width, and the same distance from each other. These are covered with a strong coarse cloth, of open texture, so as to admit of a free transmission of the heated air from the kiln below. The drying-room should be of comfortable height for a person to work in it, and the sides should be lathed and plastered, that there may be no irregularity of the heat in different portions of the room during high winds. A good ventilator should be provided in the roof, as described above. Openings should be left in the walls near the bottom of the kiln to admit fresh air from without, the draught to be regulated by means of flues, or sliding doors. The cloth for the drying-floor should be well stretched over the slats and firmly nailed. On this floor the hops are spread to the depth of six or eight inches. The proper thickness will depend somewhat on the condition of the hops; if they are very full of moisture, they should be

laid on quite thin; but if gathered when fully ripe, and in fine weather, a depth of ten inches will be allowed.

"The hops being spread as evenly as possible, the fires are immediately kindled in the kiln, and the temperature regulated to one uniform degree of heat. This, however, may be quite high at first, as there will be at that time but little danger of scorching the hops if the floor is sufficiently high. If the hops are rusty, or discolored from any other cause, it is usual to burn a little sulphur under them, which will bring them to a uniform appearance. This is done as soon as the hops are well warmed through, and feel somewhat moist. Great prejudice formerly existed against the use of sulphur in drying hops; but no objection is now made to it by the brewers, and it is generally thought that the use of it improves the appearance of all hops, and that it also facilitates the drying.

"During the drying process the fires should be kept up, and there should be a free supply of fresh air below, sufficient to keep up a regular succession of heated air from the kiln, passing through the hops and out at the ventilator, carrying with it the vapor expelled from the drying hops. This will be found far preferable to a still, dead heat. As soon as the upper part of the hops appear to have felt the fire, the lower part may be considered as nearly dry, and will rattle a little. The heap may then be turned. Before this is done the heat should be suffered to abate a little, and increased again after the turning is finished. I am aware that many do not turn their hops while drying, nor suffer them to be disturbed at all until they are ready to be removed from the floor. Still, the better opinion, I think, is in favor of turning as tending to facilitate the drying and render it more perfect by the more effectually exposing every portion of the mass to the action of the heated current of air, than would be the case were they allowed to remain as first deposited on the floor, containing many inequalities in density even when the utmost care is exercised in their distribution. If turned at the right time, and in a careful manner, there need be no injury done to the hops. When sufficiently dried they should be allowed to cool off a little, if time can be afforded, otherwise there will be great danger that they will break in moving, or a portion of them shell off and waste. Ten or twelve hours are required to dry a kiln of hops. Two kilns may be dried in twenty-four hours by keeping the heat up through the night. A twenty-foot kiln will thus dry 400 bushels in a day, as they come from the vines, making about 750 pounds of hops when dry.

"*Baling.*—The hops being dried, the next process is to bale them. This should not be done immediately after they are taken from the kiln, but they should be allowed to lie a few days in the store-room till they become a little softened, otherwise their extreme brittleness will cause them to be much broken in baling, and the sample be thereby greatly injured. The bales should be of symmetrical and convenient form, and should contain about 200 pounds. They are formed in a box or bin prepared for the purpose, in the press-room, of such shape as will give the desired size and form. Across the bottom and sides of this box the baling cloth is first laid, and the hops are then let down into it from above, and trodden down as they are dropped in until it is filled. Another cloth is then carried over the top, a follower applied, and the screws of the press turned down upon it until the whole is brought into a compact mass. The box is then taken apart, the cloth neatly secured round the bale, the screws are run up, the bales taken out and the ends cased, when it may be considered finished, and the same process is repeated in forming another."

GOVERNOR ANDREW, OF MASSACHUSETTS, ON THE EDUCATION OF THE INDUSTRIAL CLASSES.

Of the official notices made by the executives of the different States of the donation by Congress for the establishment of industrial colleges, we admire and approve most that of Governor Andrew, of Massachusetts. It exhibits such genuine sympathy for the industrial classes, such a just perception of the extent of the instruction they should receive, and such correct ideas of the mode by which that instruction may best be given, that we cannot but notice his recommendations, and the sentiments expressed by him as Governor in his messages, and in his recent address to the New England Agricultural Society.

In his message of January 9, 1863, the governor thus sketches the character of the college that should be established:

"An institution requiring 'military tactics,' and 'such branches of learning as are related to agriculture and the mechanic arts,' to be taught 'without excluding other scientific and classical studies,' must of necessity, to be worthy of Massachusetts, involve large expenditures, and demand an assemblage of men of the highest talents as teachers. For although agriculture was the first art invented, it must be the last to be brought to perfection, since it requires contributions from every branch of natural science, and aid from every other art. We shall not use the grant of Congress wisely if we make of it simply a means of giving farmers' sons such an education as they could obtain by living on a well-managed farm and attending an ordinary high-school. It must be made the means of a positive increase of human knowledge in the departments bearing on agriculture and manufactures, and the medium of teaching not only farmers, but those who shall become teachers and improvers of the art of farming."

Referring to European schools of a like character as those contemplated in the act of Congress, he says:

"The Central School of Arts and Manufactures, in France, counts forty professors and teachers. The Conservatory of Arts and Trades has a number not inferior, and has also three subordinate or auxiliary colleges in the provinces. The Polytechnic School of Vienna has fifty-eight instructors."

The colleges indicated by the act of Congress are spoken of very often as to be agricultural only. This is not the case; but that body had clearly in view the education of *all* the industrial classes—the mechanic, the manufacturer, the merchant, and a class almost new to this country because of its vast internal commerce, not yet named, but whom we shall designate as the transporter—those engaged in the carrying trade both on land and the ocean.

The educational wants of these have been sought to be provided for by the establishment of commercial colleges, schools of design, institutes of technology, &c., &c. The establishment of so many different institutions has been attended with the usual fate of American colleges: few have had the patronage to sustain them, and still fewer have had the means to properly instruct in the limited branches they professed to teach for want of that museum, apparatus, and library essential to a profitable instruction in the sciences.

These difficulties led to a report to the Massachusetts legislature in 1851,

by Professor Hitchcock, who had examined the agricultural institutions of Europe, on the educational wants of the industrial classes. Governor Andrew, referring to this report, and to the institution recommended by it, says:

"The following pregnant suggestion, looking forward to an institution of wise and liberal breadth, and of true public economy like that which our act of Congress indicates, illustrates the comprehensiveness as well as the carefulness in observation of this report. 'By the addition of a single professorship of technology,' says the report, 'to such an institution as has been described, and extending the collection of instruments to those of every art, this school might become a school of sciences as well as of commerce and manufactures, and thus afford an education to the son of the mechanic and merchant as well as the farmer.'"

Views of this nature, looking to the wants of *all* the industrial classes, thus presented, and urged by leading writers whose sympathies were with these classes, led to the passage of the act of Congress. The clear intent of that act is to provide an institution for all—not for separate institutions for each, much less for a simple professorship of agriculture in existing colleges. Governor Andrew, referring to the donation in this act, and to the policy of adding to it by concentrating other resources for the instruction of the industrial classes, says:

"The act of Congress does not make provision sufficient for an agricultural school of the highest class in each State. Nor would it be possible now to find, disconnected from our colleges and universities, as many men of high talent, and otherwise competent, as would be required to fill the chairs of one such school. But Massachusetts already has, in the projected Bussey Institution, an agricultural school founded, though not yet in operation, with a large endowment, connected also with Harvard College and the Lawrence Scientific School. She can therefore, by securing the grant from Congress, combining with the Institute of Technology and the Zoological Museum, and working in harmony with the college, secure also for the agricultural student for whom she thus provides, not only the benefits of the national appropriation, but of the Bussey Institution also, and the means and instrumentalities of the Institute of Technology, as well as those accumulated at Cambridge. The benefits to our State, and to our country, and to mankind, which can be obtained by this cooperation are of the highest character, *and can be obtained in no other way.* The details of the connexion of the Bussey Institution with the Scientific School and the College, are not yet fully wrought out; but I apprehend that little difficulty would be found in connecting it also with the grant from Congress, if the gentlemen who may be intrusted by the State with the work will approach it with the perception of the absolute necessity for husbanding our materials, both men and money, and concentrating all our efforts upon making an institution worthy of our age and of our people. Its summit must reach the highest level of modern science, and its heads must be those whom men will recognize as capable of planning a great work, and of working out a great plan."

This recommendation of union, and by it of strength, was made in order to avoid "the prevention of all the waste of means, the weakening of all resources, the repetitions of professorships, libraries, apparatus, and other material, consequent on scattering instead of concentration."

These recommendations were the result of the lofty conception which Governor Andrew had of the present and the future of the industrial classes. Urging this union of the educational resources of Massachusetts, he says:

"Regard a moment your positive wealth. Consult its wonderful growth. Remember that you owe all of it to *cultivated, instructed, intelligent industry*. You have conquered, by first understanding nature. You have studied her mysteries, guessed her secrets, and thus unlocked her treasures. And doubt not that in the wonderful future about to dawn upon our country, the part you are to enact of beneficence and glory, under the inspiration of your generous culture and expanding thought, will transcend all the former achievements of your industry, and will outshine the lustre of your arms."

In his more recent address to the New England Agricultural Society, the Governor thus, more in detail, alludes to that labor, for which he justly claims so great a future :

"The needlewoman, by the domestic hearth, or in the shops where labor associates with capital, aided by the sewing-machines—one of the last, best gifts of mechanical invention to women, if not to men; the weaver, by the side of her carpet-loom, which seems to *think* as well as to work, and which almost talks; the shoemaker, pegging a boot at a blow; the laborer, who fills his gravel-car by two strokes of a steam-shovel, and upsets it by a turn of his hand; the husbandman, who mows and rakes his hay, and reaps, and threshes, and measures out his golden grain by the agencies of cunning mechanisms, almost without fatigue, are only a few of the thousand illustrations of how the human will and the immortal intelligence of the human intellect, bridging over the gulf which lies between the boundaries of *matter* and *mind*, are vindicating the divinely-given master-ship of man over all things which God hath made on earth. Nay, more than that; for the things invisible and impalpable, existing as hidden forces in the vast abyss of nature—caloric, and steam, and electricity, and magnetism, and light itself; the mysteries of sciences, so wonderful and august that they seem to tread celestial spheres and to sweep the mind bewildered by the contemplation, far off beyond the domain of reason—these, all these, tamed and allured to human uses, are familiar spirits, by whose means a thousand daily miracles are wrought without amazement to the beholder, and with little consciousness of our own how nearly we are brought to the contemplation of the very thoughts of Deity. Those winged horses, harnessed to the plough, the loom, the travelling-car, carrying burdens, crushing ores, hammering granite and iron, or weaving delicate tissues for ornament or luxury, or flashing intelligence by invisible magic, are daily augmenting in number and power, though they had long since added mechanical forces to the industrial strength equivalent to many millions of men."

Thus, mind—"cultivated, instructed, intelligent" mind—creates vast forces; and, regarding it simply as an agent in the production of positive wealth, institutions of learning, which develop it, are the most economical investments that a State can make. Examine its influence with the highest natural talent—over such men as Watt, Telford, the Stephensons, the Brunels, Fulton, Morse, Ericsson, and others—names immortalized by their connexion with the steam-engine, bridges, the locomotive, tunnels, canals and railroads, river, lake, and ocean steam-navigation, and iron-ship construction, the telegraph, and the monitor.

Watt, who perfected the steam-engine, was early sent to a commercial school, studied Latin and the elements of Greek, and mathematics, most diligently; and, when he was fifteen years old, had read twice, carefully, Gravesands's Elements of Natural Philosophy. He was, too, a reader of poetry, of romances, of the publications of the day, and of almost every new book he could procure.

"Telford," says Mr. Timbs, "left his autobiography, with an elaborate account

of his labors for more than half a century, and other valuable contributions to engineering literature. He taught himself Latin, French, Italian, and German. He was the first president of the Institution of Civil Engineers, to whom he bequeathed his scientific books, prints, drawings, &c., and \$10,000 to provide annual premiums to be given by the council."

The elder Stephenson, the inventor of the locomotive and the founder of the railway, was deficient in early education; but, says Mr. Timbs, feeling deeply his own want of education, and in order that his son might not suffer from the same cause, he sent him to the best seminaries in the district, making him the instrument of his own better education. This he did by requiring his son to read for him at the library at Newcastle, and bring home his weekly acquirements, as well as frequently a scientific book, which father and son studied together. But so much did he appreciate the value of an education that, at his own charge, he erected a mechanics' institute, and by his own education he raised himself to the presidency of the Institute of Civil Engineers.

The elder Brunel received a collegiate education, and gave especial attention to the exact sciences, mathematics, mechanics, and navigation. His son was still more carefully educated, and was a member by fellowship of the leading scientific institutions of Great Britain.

Looking, then, to the vast material wealth these and like minds have created, who dares contend that the mission of the industrial classes does not demand the most thorough instruction? Compare the laws of man—the common law and equity, the municipal, the commercial, the international—all together—with the laws of nature; how insignificant are they! If the education of the lawyer should be such as fits him for an understanding of the one, that of the industrial classes should qualify them for an understanding of the other.

Let no one mistake great inventions or discoveries as the unpremeditated suggestions of as great genius. The electric telegraph commenced with Franklin: Morse but completed it. So the daguerreotype. The incrustation of surfaces steeped in an acid solution of silver and chlorine was first known in 1777, and in 1801 a solution of nitrate of silver. In 1802 images on such surfaces were obtained by the camera obscura; but those images faded away rapidly when exposed to light. Then Niepce, an amateur French chemist, after ten years' experiments, from 1814 to 1824, succeeded in taking permanent images, but he was ten hours in getting them, and then without certainty. Daguerre experimented till poverty alarmed his wife, whilst Arago believed that science was not yet sufficiently advanced for success. In 1839 that success finally crowned this labor of sixty-two years, in which most conspicuously are the names of Scheele, Ritter, Wollaston, Sir Humphrey Davy, Wedgwood, Niepce, and Daguerre. Continents can be explored only after a Columbus has discovered them.

But inventions and discoveries have no limit. The application of natural laws to the purposes of life is bounded only by the infinitude of those laws. And therefore wisely does Governor Andrew thus address the farmers of New England:

"Deepen and widen the foundation of your seminaries and schools of learning. Encourage genius as well as industry. Invite hither, and hold here, the profound thinkers, the patient students of nature, those tireless watchers who wait upon the stars, or weigh the dust upon an insect's wing. Discard and discourage alike the prejudices of ignorance and the conceits of learning. Remember that even to-day there is no man so wise that he understands the law which regulates the relation of any fertilizer to any crop; that few have observed the mystery of that wonderful influence of the first impregnation of the dam upon the future offspring of whatever sire; that the origin and contagion of the cattle disease, or pleuro-pneumonia, remain hitherto without adequate scientific explanation; that the practical farmers and men of science, all combined, understand as little the destructive potato rot, which concerns the economy of every farm and every household, as the aborigines who first descried the Mayflower understood of the poems of Homer or the philosophy of Aristotle. Not undervaluing the past achievements of science, remember how infinite the extent and variety of the conquests which yet remain to her."

How little, indeed, does agriculture yet know! How little of the life-giving pollen! Yet there is nothing in nature that forbids man to attain such knowledge of its action that, by means of it, he can originate such varieties as his imagination may conceive within the limits of the character of the genus.

"Happy the man who doth the causes know
Of all that is."

But it is not in their occupation only that the progress of the industrial classes is to be viewed. They have relations to society and to the State. And, alluding to these, the Governor thus speaks to the industrial classes of New England:

"Obedient to order and practicing industry, as well as loving individual freedom, the people of New England have acquired at last an instinct which discriminates between license and liberty, between the passions of the hour and the solemn adjudications of law. They possess the traditions of liberty, they inherit ideas of government, they bear about in their blood and in their bones the unconscious tendencies of race, which rise almost to the dignity of recollections, and which are more emphatic and more permanent than opinions. By the toil of more than seven generations they have acquired and hold in free tenure their titles and their possessions. The dignity of the freehold, the sacredness of the family, the solemnity of religious obligation, the importance of developing the intellect by education, the rightful authority of government, the rightfulness of property earned or inherited, as flowing from inalienable self-ownership of man and the rights of human nature, the freedom of worship, the idea of human duty, expanded and enforced by the consciousness of an immortal destiny, are alike deeply imbedded in the traditions and convictions of the immense and controlling majority of our people."

"If there is aught which men deem radicalism, or fear as dangerous speculation in our theology or our politics, I call mankind to bear witness that there is no child so humble that he may not be taught in all the learning of the schools, no citizen so poor that he may not aspire to any of the rewards of merit or honorable exertion, not one so weak as to fall below the equal protection of equal laws, nor one so lofty as to challenge their restraints; no church or bishop able to impose creed or ritual on the unconvinced conscience; no peaceful, pious worship, which is unprotected by the state. Thus liberty stands, and the law supports liberty; *popular education lends intelligence to law, and gives order to liberty*, while religion, unfettered by human arbitration between the

soul of man and the throne of the Infinite, is left free to impress the individual conscience with all the sanction of its supreme behests, and of its celestial teachings."

Not less truthful are these quotations than their eloquence. In them are pictured that political condition which exists nowhere else than among an intelligent industrial class. Look on this picture and then on the following—the one redolent with intelligence, the other shrouded in the gloom of ignorance; the one self-governing, the other but the blind tool of despotic ambition.

The intelligent correspondent of the New York Evening Post, describing the incidents of General Sherman's march through Georgia, thus speaks of the people there :

"Frequent occasions occur for conversation with the people. In the upper part of the State, not meeting with any but the poorer, more ignorant class, I wished to believe that the rich and refined class had fled further south; but, although I have made diligent search for the intelligent, intellectual aristocracy, I have met only with failure and disappointment. Rich men there are, whose plantations line the roads for miles; men and women who own, or did own, hundreds of slaves, and raised every year their thousand bales of cotton, but their ignorance is only equalled by that twin sister of ignorance, intolerance. I can understand, as I never did before, why it was that a few persons, who every year represented the south in Congress, were able to wield that influence as a unit. To be sure the interest of slavery was all-controlling, yet it never would have brought this people to the pitch of civil war, had they received the most common benefits of education. The solemn truth is, that the southern people have never had any conception of the nation as I did. They do not know what it is to be an American."

These pictures teach us a lesson—made solemn by our national calamities. And nowhere is this lesson better enforced than in the following language of Governor Andrew :

"Schools, colleges, books, the free press, the culture of the individual everywhere, the policy of attracting, encouraging, and developing all the great qualities of the head and heart—in a word, the production and diffusion of *ideas*—in these shall rest forever the secret of your strength to maintain your true position. I implore you to unite and not divide in your policy. *Whenever you can create a great school, or find a great professor, unite to strengthen the school, and to make sure of the man.* Our system of diffusing knowledge through the local schools, our plan of distributing elementary instruction, are things of which we are sure. But your district schools will themselves go to seed, your knowledge will become bigoted and mean, unless you remember that the encouragement of these higher institutions from which they are fed, and where their teachers are themselves taught, is as needful as the creation of the head of water above the dam is to the spindle's point. Your greatness must be found hereafter where it has been found hitherto, in the highest development and cultivation of the faculties of *men*."

THE PROFITS OF WOOL-GROWING, AND THE FUTURE WOOL MARKET.

We give below a most valuable communication on the profits of wool-growing, and valuable, too, as exhibiting what energy and business attainments can accomplish in agriculture, even when their possessor is wholly unversed in

farming. It furnishes an instance among hundreds of others that might be cited of the truth of the opinion advanced in our report of a year ago, that industrial education should aim more to develop the faculties of the mind than narrow it down to knowledge in a mere pursuit, fitting all for whatever occupation our changing American life and energies may invite the individual into. "Here," as was remarked in that report, "the merchant longs to be released from the distracting cares of commercial pursuits, and the opulent manufacturer from the dangers of changing markets. Both anxiously desire the rest and enjoyment found in the country life." It shows the truth of the remark of Governor Andrew, of Massachusetts, in his address at Springfield, that "the tendency of young men to seek other than rural employments is partially balanced already by the tendency of their fathers to return to them."

Making all allowances for the favorable time in which the writer has made his experiment, and the additional interest on the purchase-money of so much of the farm as used in his sheep husbandry, which, we think, is not fully represented in the cost of keeping his flock, we still see how inviting to wool-growing is the experience of our correspondent, as shaped by energy and business intelligence.

The future of the wool market is most encouraging. That the prices will be affected by the return of peace is very certain, but they will not be, we think, to the extent of the change in the prices of other commodities. The south has continued the war until it has become so much exhausted in labor, money, means of transportation, and to the ruin of so many plantations, that a crop of cotton, strongly competing with the wool product, cannot soon be grown after the return to peace.

Again, the price of wool has never had an advance equal to most other products and to the advance in gold. The United States Economist remarks that "there is no article in the catalogue of merchantable commodities that has advanced so little since the commencement of the war as wool," and this it shows by the following table, the first column of which exhibits the market rates of gold and the second and third columns the currency and gold prices:

Month.	Gold rates.	Currency price of wool.	Coin price.
January	155	\$0 80	\$0 51.61
February	157	71	45.22
March	162	74	46.12
April	170	76	44.70
May	180	80	44.14
June	205	89	43.11
July	256	97	37.89
August	256	1 03	40.28
September	230	1 07	46.52
October	205	86	41.95
November	230	94	40.87
December	333	98	42.60
Average	203½	87.91	43.59

By this table it will be seen that in January gold was 155; in December 233; a difference of 78 cents, being an increase of 50 per cent. Wool in January was 80 cents in currency, and in December 98 cents, a difference of 18 cents, being an increase of only $22\frac{1}{2}$ per cent. In the coin price there is an actual decrease of 9 cents during the year. In January the difference between the currency and coin price was 55 per cent.; in December that difference had increased to 140 per cent., occasioned not only by the *increased* currency price, but by the *decreased* coin price. The chief cause of this injustice to the American wool-grower is found in the heavy importations of wool in 1864. Whilst the home product was from 80,000,000 to 95,000,000 pounds, the imported wool was 74,963,047 pounds. But this competition will not exist hereafter, for the tariff duty on wools, under the act of last session of Congress, is rapidly decreasing the amount of these imported wools. This is seen in our imports of wool from Great Britain. In eleven months of 1863 we imported 14,202,122 pounds; in eleven months of 1864, but 4,822,147 pounds.

Again, under the misnamed reciprocity treaty with Canada, which ought to have been entitled, A treaty to sacrifice the interests of agriculture for the benefit of commerce and manufactures, wool was admitted free of duty; and so large a quantity of the kind most in demand, *the combing wool*, came from that quarter, that among eastern manufacturers it is known by the name of Canada wool. Notice has been given that this treaty will be abrogated; and although it cannot be for a twelvemonth after such notice, yet the fact of its certain abrogation at that time will serve to uphold the price during 1865.

In view of the fact that these Canadian combing wools will be excluded, as well as from the general fact, shown in our last report, that in Europe as well as in the United States, the coarser wools are now consumed in larger proportion than the finer, as also that there is a rapid increase in the consumption of mutton, we urge our wool-growers to a greater increase of the Cotswolds and Leicesters, and such crosses of these as yield profitable fleeces and carcasses.

Concurring in the wish of the Economist, that it hopes to see the day when every pound of wool consumed by our manufacturers *will be grown in America*, we commend the following letter to our readers:

SPRING BROOK FARM,
Near Kalamazoo, Michigan, January 16, 1865.

DEAR SIR: Yours of the 6th instant is before me, and having the leisure, I hasten a reply, and in doing so, permit me to do so somewhat in detail. The spring of 1861 found me tired of commercial life, sickened with politics, advanced in years, and quite infirm from sedentary habits; with no practical experience in farming, the use of agricultural implements or the habits of stock. I traversed portions of Ohio, Illinois, Wisconsin, and Iowa, looking for a farm to retire upon. In October I purchased in this State, and on the first day of November, like the man who purchased an elephant, I found myself the owner of four hundred and eighty acres of land, and "didn't know what to do with it"—a fit subject for knowing ones to impose upon.

I have since learned that the flock I bought with the farm, consisting of

wethers, ewes and lambs, were common sheep. The lambs graded up by a grade Spanish buck, shearing ten pounds of washed wool. This was a flock of two hundred and seventy-six, and cost \$2 50 each, or \$690. Another flock of eighty, having two French bucks, a few nearly pure Frenchewes, a few Leicesters, and about equally divided between ewes, lambs and wethers, I purchased for \$150. To this purchase I added two as good Spanish blooded bucks as could be obtained, for \$30, making 358 sheep, costing me \$870. These were considered high figures at that time, and the source of some merriment to the yeomanry in the vicinity. As if to add to my confusion, about the middle of December my shepherd came to me and said "the largest flock had the *scab*, and that the vender knew the other flock had the *foot rot* when he sold them to me, and that I should slaughter the flock and keep no sheep for years to come." Here was a dilemma, and the "book farmer" would trot back to town again wiser than he came, in the opinion of some. Goaded to desperation by such remarks, and the idea of being so "wooled," I "off coat" for a personal examination. Some of the largest flock had spots on their haunches and shoulders of harsh, dry, and matted wool; the skin under these spots exhibited small pustules, and the whole skin yellow in appearance. This seemed the scab indeed, and I treated it as such by withdrawing the diseased ones, and housing them in warm stables and pouring on to the spots from a tea-kettle a strong solution of tobacco as often as it became dry, and until the old wool on the spots sloughed off, a new and healthy growth starting. This occurred within three weeks. No new cases appeared, and I have since determined their disease to be "pelt rot," contracted from running through the wet autumn of 1861, in high clover. The second flock undoubtedly had a slight touch of the foot rot, contracted from the low lands they had run on the season before. The hoofs of this flock I immersed twice a week in pyroligneous acid, diluted one-half, and, suffice it to say, the first day of the next February no lame sheep or skin disease could be found in the flock. By this time, becoming somewhat interested in the welfare of my sheep, and inured to exercise, as the 15th of April approached, I took personal charge during the lambing season, rearing about 70 per cent. of those dropped; thus ended all my fears. I could tell "a sheep from a goat," and went on my way, "thanking God and taking courage."

Now for the general success and three years' experience. The whole flock was debited with their purchase-money. At the end of the year interest thereon was charged at 10 per cent., charging them the first year \$1 50 per head for board and shearing. The second year, the account running two years before balancing, the flock was debited with one year's interest on the previous year's board. As I sold culls, wethers and lambs, and wool, the flocks received credit, as the following exhibit will more particularly unfold:

1861.	
November 1.	To purchase money for 358 sheep \$870 00
1862.	
November 1	To purchase money of 1 buck 20 00
	To board and shearing 350 sheep 1 year, at \$1 50 each 525 00
	To 10 per cent. interest on \$870 purchase-money, 1 year 87 00
1863.	
March.	To purchase money for buck-lamb 10 00
November.	To board and shearing 423 sheep, at \$1 50 each 634 00
	To 10 per cent. interest on \$1,425, original cost of flock, and 1 year's board 142 50
Total cost	
2,228 50	

Credit.

1861.	
December.	By 8 sheep slaughtered, at \$2 50 each ... \$20 00
	By receipts for lost sheep's pelts 12 00
1862.	
July.	By receipts for 1,526 lbs. of wool, at 50 cts. 763 00
August.	By receipts for 2 bucks sold 20 00
October.	By receipts for 50 wethers sold, at \$2 50 . 125 00
November.	By average interest on receipts. 23 50
1863.	
September.	By 20 cull ewes and 50 wethers, at \$3 ... 210 00
	By 51 wether lambs and 25 cull ewes at \$2 50..... 190 00
October.	By 25 cull ewes, at \$3, 50 do. at \$3 50... 250 00
	By 25 wethers, at \$3 75 00
	By 22 wether lambs, at \$2 50, 1 buck at \$3 58 00
	By 7 lambs' pelts..... 4 00
	By 1 sheep slaughtered..... 3 25
November.	By 1,726 lbs. of wool, at 75 cents..... 1,294 50
	By on hand 240 breeding ewes, 69 one shear ewes and 19 one shear wethers, total 328, at \$2 50 820 00
	8 bucks, valued at 115 00
	————— \$3,983 25
	Deduct expenses as above..... 2,288 50
	Net profit..... <u>1,694 75</u>

It will be observed in the foregoing statement of two years, that the sheep on hand were estimated at \$2 50 per head, exclusive of bucks. In opening the account for 1863 and 1864 I value the ewes, lambs, and wethers at \$4 each, which, if added to the profits, as shown in the balance of 1861, 1862, and 1863, exhibits a net profit of \$2,186 75 on an outlay of \$870 the two years before. The third year's exhibit is as follows:

1863.	
November 1.	To valuation of 328 sheep at \$4..... \$1,312 00
	To valuation of 8 bucks..... 115 00
	To cash paid for buck John..... 25 00
1864.	
June.	To cash paid for washing and shearing..... 50 00
November 1.	To 10 per cent. interest \$1427 valuation Nov., 1863 142 70
	To boarding 337 sheep one year at \$2 each..... 672 00
	—————
Total cost.....	<u>2,316 70</u>

Contra credit.

1864.	
July	By 1,478 pounds of wool, at \$1..... \$1,478 00
August	By 7 wether lambs to butcher..... 21 00
August 11.	By 19 yearling wethers, at \$4..... 76 00
September 6.	By 70 wether lambs, at \$3 50..... 245 00
	By 12 cull ewe lambs, at \$4..... 48 00
Sept. 10.	By 41 cull ewes, at \$5..... 205 00
October	By cash for buck lamb..... 15 00
	By cash for Dan buck..... 15 00

November 1. On hand 69 one-shear ewes, 60 ewes of the original flock, 122 ewes twice shorn, 85 ewe lambs, and 3 wethers ditto, 5 buck lambs—in all 344, at \$4 each.....	\$1,376 00	
7 bucks.....	115 00	
	<hr/>	\$3,594 00
Net profit.....		<hr/> 1,277 30 <hr/>

I am now in my fourth year in sheep husbandry, and having disposed of all my wethers but three, and all of the ewes which had lambs and which did not shear four and a half pounds, at \$5 per head, I have valued the whole flock at what the drafted ewes sold for, viz: five dollars each. This increase of one dollar each, added to the profit of last year, makes the net gain of \$1,621 30 on an investment one year ago of \$1,427. My present flock, it will be seen, consists of 60 ewes of the original flock, 122 two-shear ewes, and 69 one-shear do., all with lamb, or supposed to be; three lamb wethers, 85 ewe lambs, five buck lambs, and five old bucks. The latter I have estimated at \$115, as the year previous, and all of the former at five dollars each, believing them, aside from the change of times, to have doubled in value by careful breeding. So that the account stands on the first day of November, 1864—

Dr.

To 5 bucks.....	\$115 00
To 344 sheep, at \$5 each	1,720 00
	<hr/>
	\$1,835 00 <hr/>

The first year I fed with clover hay and about one gill of shelled corn to each sheep, commencing to feed corn to the ewes two weeks before copulation with the bucks, and continuing it until turned out in the spring. It will be seen that the flock of ewes and wethers sheared a little over four and a half pounds general average that year. The next year I fed no corn after January, and the general average of the same flock was but a trifle over four pounds. The last year I fed corn to the breeding ewes as heretofore before copulation, and until the 1st of February, when I commenced with wheat bran, known as coarse middlings, and weighing about forty pounds to the bushel, intending to feed about three-quarters of a pound to each until turn-out. The flock of ewes thus grained and fed with poor clover hay twice a day, salted once a week, including 19 inferior wethers, once shorn, and since sold for four dollars each, it will be seen by inspection gave a general average of over four and a half pounds of clean washed wool, which sold readily in the barn for one dollar per pound.

Last season I reared over 90 per cent. of lambs, and expect to do so this spring. Dropping should commence by the 5th of April, and should be all through with before the ewes are turned out. Lambs do not do well coming after so great a change in diet; and if an ewe loses her lamb, her udder is generally ruined for want of care. One shear-sheep requires better feed than older ones; quite as good as lambs if allowed to breed. I am feeding that kind of ewes hay twice a day, and one pound of wheat middlings each. The older ewes have straw, bean haulm, or corn-stalks twice, and hay once, with three-quarters of a pound of the middlings per day. The lambs have hay three times a day, with a peck of shell-corn mixed with treble the quantity of middlings. I have not lost a sheep since last April, at the lambing season, nor do I expect to until that season shall arrive again. All the ewes wear in their right ear a

copper rivet, numbered on one side, with my initials on the reverse. These are inserted after the ear has healed from the puncture made with a No. 10 harness punch. When a sheep is being shorn, its number is taken, the fleece when off is weighed, and this last year, if a two-year old ewe did not raise a lamb and shear four and a half pounds of washed wool, she was put into the draft flock for sale. At the next shearing I shall raise the standard to five pounds. My sheep are rapidly becoming what are now known as Spanish sheep. The principal buck weighed seventy pounds before shearing, and his fleece weighed twelve pounds of clean free washed wool. Enclosed find a sample of seven months' growth. I have no confidence in these high-priced, fancy-faced, oily bucks, peddled through the country. They are like Peter Pindar's razors made to sell. My bucks are kept in an enclosure of one acre, with an open shed on three sides, *shingled* with straw. This yard has a hay barn in the centre, several straw stacks, and is partitioned off so that no more than fifty sheep feed together. The yard is upon a twenty feet elevation, above an enduring stream, to which the sheep always go for drink after each meal. The stream is strongly impregnated with iron, to which I attribute the general good health of the flock and healthy strong lambs. The ammonia in snow and magnesia in water is, in my opinion, a fruitful source of goitre or swelled glands in lambs.

With clover hay in the barn at six dollars per ton, corn at fifty cents, bran at ten dollars per ton, straw and corn fodder accumulating on a farm to feed therewith, sheep can be kept one year and shorn for \$1 50 per head, and give their entire droppings to manure with as profit.

The season last past the forage was higher, and it will be seen the flock is charged with \$50 for washing and shearing, and \$2 each for board. A sheep should receive daily about 3 per cent. of its live weight in good clover hay in winter, or its equivalent. The tables found in your report of 1862, page 273, are unquestionable, and of great value to the practical shepherd. By 3 per cent. of live weight daily, as a standard, it is not difficult to arrive at a just estimate of the cost of wintering, when the price of forage is established.

Hoping to hear from you often.

I am, yours,

C. S. POTTER.

Hon. I. NEWTON,

Washington, D. C.

THE DEPARTMENT PLAN OF ESTIMATING THE AMOUNT OF CROPS TESTED.

We have, at different times, made known the plan of estimating the annual products of the country by the Department of Agriculture. It necessarily must be tested, and these trials will be noticed in these reports; for we have now so much confidence in the plan itself, that whatever errors may be found in the results, we believe will be in mistake in details, which may be corrected, and not a radical wrong in the plan itself.

We have before us two tests, as severe as the plan could be subjected to, because they refer to the tobacco and hog crops—one vegetable, the other animal, and two of our most changing crops since 1861; the one (tobacco) so vastly increasing in the loyal States, and the other so greatly decreasing.

In Rader & Son's annual tobacco circular for New York there is this statement:

"The enormous yield of tobacco in 1863, of which we received in this market over 132,000 hogsheads, and therefore must have been fully 175,000 hogsheads, taking in the consumption in the west and stocks still held there, has been a matter of surprise even to the best informed."

We believe the crop of 1863 is larger than here stated. To the 132,000 hogsheads received at New York, there were inspected in 1864, at Baltimore, 52,873 hogsheads. This alone makes the crop received at New York and Baltimore 184,873 hogsheads. The consumption of that which has been inspected elsewhere, and of that which was consumed without inspection, could not be less than 35,000 hogsheads. If so, then the crop of 1863 may be represented as 219,873 hogsheads, equal to 263,847,600 pounds, estimating the hogshead at 1200 pounds.

As reported by this department, the tobacco crop of 1863 was 267,267,920 pounds.

The second test of the plan of the department is in its estimated decrease of the number of hogs. In 1863-'64 the number packed and shipped in the west was 3,291,105. The estimated amount, as stated in the bi-monthly report of September and October, for the season of 1864-'65, was 2,340,469, being a decrease of 950,636. The returns, as far as received, show a decrease of 488,047 on 1,750,344 of last year's packing, being equal to a deficit of 917,656 on the whole number packed last season. So close an approximation would be regarded with favor in ordinary circumstances; but under the remarkable changes which the hog crop has endured from the loss of the corn crop in 1863, it presents an estimate that will command great confidence in the plan adopted here for the estimates of crops.

Henry Milward & Co.'s provision circular of Chicago, of January 11, has the following comments on the pork market:

"The returns from the various packing points come in but slowly; but they all show more than even the estimated deficiency; and we see no reason to change our original opinion, that the total deficiency will be at least 800,000 head, and may reach, and possibly exceed, 1,000,000, &c., &c., &c."

CINCHONA PLANTS.

On the 13th of January plants of *Cinchona condaminea* (Peruvian bark tree) appeared at the agricultural garden in basins in which seed had been sown. They came up by hundreds in less than one month from the time of sowing. The seed, however, were in excellent condition when received from their native country, having been gathered when thoroughly ripe in September last, and subjected afterwards to careful treatment. In trials with *Cinchona* at the Kew gardens in London, some years since, germination took place at the end of three months.

The present species of Peruvian bark tree is from the vicinity of Loxa, in Southern Ecuador, and is one of established reputation. It is believed to be well adapted to cultivation in a great part of California, in the mountain regions east of that State where cold is not extreme, in the mountains of the interior of Texas, and in other locations in our country.

THE AVERAGE YIELD PER ACRE AND AVERAGE PRICES OF THE CROPS
OF 1864.

The following tables show the *average yield* per acre and the *average prices* of the leading crops of 1864 for each of the States named. It will be republished in the February report, and tables made from it, exhibiting a comparison with the value of the crops of 1863, the yield per acre, and the average of each crop in the several States and for the United States.

Table showing the average yield per acre and the average prices of the principal crops of the loyal Atlantic States for 1864.

STATES.	WHEAT.		RYE.		BARLEY.		OATS.		CORN.	
	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.
Maine	10 $\frac{5}{11}$	\$2 60	12	\$2 04 $\frac{1}{2}$	18	\$1 45	22	\$1 01	27	\$2 10
New Hampshire	12 $\frac{1}{2}$	2 68	14 $\frac{1}{2}$	2 04	18	1 69	24	92	29 $\frac{1}{2}$	2 11
Vermont	14	2 57 $\frac{1}{2}$	15 $\frac{1}{2}$	1 88	22	1 61	33	87	38 $\frac{3}{4}$	1 96
Massachusetts	16	2 41	15	2 00	20	1 78	26 $\frac{3}{10}$	1 04	31 $\frac{1}{2}$	2 04
Rhode Island	15	2 50	17	2 00	25	1 64	33	98 $\frac{3}{4}$	30 $\frac{1}{2}$	2 09
Connecticut	16 $\frac{1}{2}$	2 37 $\frac{1}{2}$	15	1 91	23 $\frac{1}{2}$	1 81	30	1 00	31	1 81
New York	13	2 34 $\frac{3}{8}$	14 $\frac{1}{2}$	1 70 $\frac{1}{2}$	18 $\frac{3}{4}$	1 74 $\frac{1}{4}$	23	94	29 $\frac{1}{2}$	1 68
New Jersey	15	2 33	13 $\frac{1}{2}$	1 69 $\frac{3}{8}$	20	1 78 $\frac{1}{2}$	32 $\frac{1}{2}$	91 $\frac{1}{2}$	31 $\frac{3}{8}$	1 70 $\frac{1}{2}$
Pennsylvania	12	2 40	14 $\frac{1}{4}$	1 70 $\frac{1}{6}$	18	1 71	29 $\frac{1}{4}$	87	29 $\frac{1}{2}$	1 54 $\frac{3}{4}$
Maryland	11 $\frac{1}{2}$	2 60	14	1 64	26 $\frac{3}{8}$	1 78 $\frac{3}{8}$	22	87	21 $\frac{1}{2}$	1 62
Delaware	12	2 53	15 $\frac{3}{8}$	1 56 $\frac{3}{8}$	27	1 87 $\frac{1}{2}$	24	80	20 $\frac{1}{2}$	1 55
Kentucky	10 $\frac{1}{4}$	1 96 $\frac{1}{2}$	13 $\frac{3}{8}$	1 35 $\frac{1}{2}$	23 $\frac{1}{8}$	1 59 $\frac{1}{6}$	24 $\frac{1}{2}$	79 $\frac{1}{4}$	28 $\frac{1}{2}$	96 $\frac{3}{8}$
Ohio	10 $\frac{1}{4}$	1 93	12 $\frac{1}{4}$	1 32 $\frac{1}{6}$	23 $\frac{3}{8}$	1 56	29	72 $\frac{1}{3}$	31 $\frac{1}{2}$	96
Michigan	12	1 96	12 $\frac{1}{4}$	1 36 $\frac{1}{2}$	19 $\frac{1}{2}$	1 56	26	75 $\frac{3}{4}$	24 $\frac{1}{2}$	1 26
Indiana	14	1 75	14	1 31	24	1 56	26	73 $\frac{3}{8}$	29	95 $\frac{1}{2}$
Illinois	14 $\frac{1}{8}$	1 55	15	1 01 $\frac{1}{2}$	22 $\frac{3}{8}$	1 37	31 $\frac{1}{6}$	61	33	75
Missouri	14 $\frac{1}{2}$	1 75	15 $\frac{3}{8}$	1 11 $\frac{1}{8}$	23	1 47 $\frac{3}{8}$	25 $\frac{1}{4}$	71 $\frac{1}{2}$	26 $\frac{1}{2}$	97
Wisconsin	9 $\frac{1}{2}$	1 48 $\frac{1}{2}$	12 $\frac{1}{4}$	1 09 $\frac{1}{6}$	13 $\frac{1}{4}$	1 49	27 $\frac{1}{2}$	60	31	94
Iowa	12 $\frac{1}{4}$	1 34 $\frac{1}{2}$	15	92	21	1 20 $\frac{1}{4}$	32	53	36 $\frac{3}{8}$	67 $\frac{3}{8}$
Minnesota	13 $\frac{1}{8}$	1 13 $\frac{3}{8}$	14 $\frac{1}{2}$	92	20	1 09 $\frac{1}{6}$	28 $\frac{3}{4}$	73 $\frac{1}{2}$	33	94
Kansas	15	2 01	17	1 25	23	1 27	29	96 $\frac{1}{2}$	25	1 37
West Virginia	9 $\frac{1}{2}$	2 01	12 $\frac{1}{2}$	1 47	20 $\frac{1}{2}$	1 67	24	79 $\frac{1}{2}$	31	1 06
Nebraska Territory ..	14	1 50	16	1 29	20	1 22 $\frac{1}{2}$	28	68 $\frac{3}{4}$	28 $\frac{1}{2}$	99

Table showing the average yield per acre and the average prices of the principal crops of the loyal Atlantic States for 1864.

STATES.	BUCKWHEAT.		POTATOES.		LEAF TOBACCO.		HAY.		FLAX-SEED AND LINT.	
	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in pounds.	Average price per pound on 1st of January, 1865.	Average yield per acre in 1864, stated in tons.	Average price per ton on 1st of January, 1865.	Average yield per acre in 1864, the seed stated in bushels and lint in lbs.	Average price per bushel of seed and per lb. of lint when sold.
Maine	19	\$1 28	143	\$0 67	.....	.....	.....	\$21 00	.....	.....
N. Hampshire..	19½	1 32	164	60	985	\$0 25	1	21 00	{ 8 bush..	\$3 00
Vermont.....	19½	1 04	162½	54	.....	.....	1	17 95	{ 800 lbs..	.....
Massachusetts..	16½	1 25	132½	93	1,650	25	1	29 00	7 bush..	3 50
Rhode Island...	.....	.....	127½	97½	1,350	30	1	31 50	.....	.....
Connecticut....	16½	1 35	131	83	1,450	25	1½	27 00	.....	.....
New York.....	18½	1 13½	115½	65	856	24½	1½	23 05	{ 7½ bush	3 00
New Jersey....	17	1 44	86½	1 08	.....	25	1½	26 71½	{ 260 lbs..	21½
Pennsylvania ..	18½	1 16½	110½	89	1,068½	18½	1½	24 55	{ 10 bush.	3 08
Maryland.....	19½	1 58	55	1 20	750	13½	1½	27 00	{ 268 lbs..	26½
Delaware	20	1 60	125	1 32	.....	.....	1½	30 00	{ 10 bush.	3 16
Kentucky.....	20½	1 37½	81½	1 00½	770	12	1½	20 16	{ 250 lbs..	20
Ohio	17	1 10	93	91½	870½	13½	1½	19 38	{ 10 bush.	3 50
Michigan	12	1 18½	79	81½	1,080	20	1½	19 33	{ 237½ lbs.	25
Indiana	18½	1 24½	89	99½	856½	14	1½	17 81	{ 9½ bush.	1 80
Illinois	17	1 10	81½	1 15	967	16½	1½	15 33	{ 200 lbs..	62½
Missouri.....	15½	1 07	39	1 75½	562½	13½	1½	18 12½	{ 8½ bush.	2 43
Wisconsin.....	16½	88½	118	55	980	15	1½	13 00	{ 221 lbs..	29½
Iowa	17½	1 14	76	1 11½	957	25	1½	9 51	{ 8 bush..	2 67
Minnesota	17½	1 23½	112	67½	800	20	1½	9 36	{ 200 lbs..	30
Kansas	15	1 25	43	2 68	675	11½	1½	13 00	{ 8½ bush.	2 29
West Virginia ..	18½	1 32	74	1 29	655½	20	1½	20 61	{ 200 lbs..	20
Nebraska Ter'y.	.....	.....	51½	2 08	.....	.....	1½	7 33	.....	.....

Table showing the average yield per acre and the average prices of the principal crops of the loyal Atlantic States for 1864.

STATES.	SORGHUM MOLASSES.		BEANS.		PEAS.		HOPS.		CLOVER-SEED.	
	Average yield per acre in 1864, stated in gallons.	Average price per gallon on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.	Average yield per acre in 1864, stated in pounds.	Average price per pound on 1st of January, 1865.	Average yield per acre in 1864, stated in bushels.	Average price per bushel on 1st of January, 1865.
Maine.....	.....	.....	14	\$2 83	14 $\frac{3}{4}$	\$2 67	900	\$0 33	4 $\frac{1}{2}$	\$14 00
New Hampshire.....	.....	.....	14 $\frac{1}{2}$	2 80	13 $\frac{3}{4}$	2 25	458	38	4	14 12 $\frac{1}{2}$
Vermont.....	.....	.....	17 $\frac{3}{4}$	2 57	18	1 82	550	25	4	15 00
Massachusetts.....	.....	.....	11 $\frac{1}{4}$	2 84	20	2 25	.....	50	.....	18 00
Rhode Island.....	.....	.....	15 $\frac{1}{2}$	2 87 $\frac{1}{2}$	10	3 00	.....	.....	.....	.....
Connecticut.....	126 $\frac{3}{4}$	\$1 20	15 $\frac{3}{4}$	3 00	20	2 90	.....	.....	3	9 50
New York.....	112 $\frac{1}{2}$	1 06	16	2 38	16 $\frac{1}{2}$	1 79 $\frac{1}{4}$	661 $\frac{1}{2}$	41	2 $\frac{3}{4}$	14 27
New Jersey.....	105	1 18	18	2 42	.....	.....	600	42	.....	15 00
Pennsylvania.....	114 $\frac{1}{8}$	1 22	18 $\frac{1}{2}$	2 60 $\frac{1}{2}$	21 $\frac{5}{8}$	1 98 $\frac{3}{8}$	431 $\frac{1}{8}$	42 $\frac{1}{2}$	1 $\frac{3}{4}$	13 54
Maryland.....	91	1 14	21	2 65	15	2 50	.....	.....	$\frac{1}{2}$	14 20
Delaware.....	134 $\frac{3}{4}$	1 00	15	2 33	20	1 75	.....	45	4	13 66
Kentucky.....	102	1 20 $\frac{1}{2}$	25	2 00	.....	3 00	.....	50	3	13 25
Ohio.....	118	1 03 $\frac{1}{4}$	15 $\frac{3}{4}$	2 27	20	2 58 $\frac{1}{2}$	700	28 $\frac{1}{2}$	2 $\frac{1}{2}$	13 00
Michigan.....	121 $\frac{1}{2}$	1 19 $\frac{1}{4}$	14	2 00	18	1 94	1,268	33 $\frac{1}{2}$	1 $\frac{1}{2}$	12 44
Indiana.....	80 $\frac{1}{2}$	1 05 $\frac{1}{2}$	17 $\frac{3}{4}$	2 40	.....	.....	.....	92 $\frac{1}{2}$	.....	12 67
Illinois.....	100 $\frac{1}{2}$	1 01 $\frac{1}{4}$	17	2 02	22 $\frac{2}{5}$	1 71	1,350	40	3 $\frac{1}{2}$	10 66
Missouri.....	106	1 03 $\frac{1}{2}$	20 $\frac{3}{4}$	2 05	17 $\frac{1}{2}$	1 31	.....	.....	4	9 87 $\frac{1}{2}$
Wisconsin.....	111 $\frac{1}{4}$	1 19	16 $\frac{1}{2}$	1 80 $\frac{1}{2}$	21	1 45 $\frac{1}{2}$	1,350	35 $\frac{1}{2}$	2 $\frac{1}{10}$	11 32
Iowa.....	102	1 12 $\frac{1}{2}$	18 $\frac{1}{4}$	2 10	25	1 85 $\frac{1}{2}$	1,250	45	2 $\frac{1}{2}$	11 31
Minnesota.....	103 $\frac{1}{2}$	1 29	13	2 97	18	1 83 $\frac{1}{2}$	.....	.....	.....	.....
Kansas.....	75 $\frac{1}{2}$	1 14 $\frac{1}{2}$	24	3 17	21 $\frac{2}{3}$	2 00	.....	.....	.....	.....
West Virginia.....	114	1 17	21 $\frac{3}{4}$	2 28 $\frac{1}{2}$	21 $\frac{2}{3}$	2 50	.....	.....	3 $\frac{1}{2}$	11 40
Nebraska Territory.....	120	1 28	12 $\frac{1}{4}$	1 75	.....	.....	.....	.....	.....	.....

IMPORTS AND EXPORTS.

IMPORTS.

The total imports at the port of New York are as follows :

Years.	Dry goods.	General merchandise.	Total.
1862.....	\$56, 121, 227	\$115, 954, 822	\$172, 076, 049
1863.....	67, 274, 547	117, 124, 716	184, 399, 263
1864.....	71, 589, 752	133, 473, 764	205, 063, 516

KIND OF DRY GOODS IMPORTED.

	1862.	1863.	1864.
Manufactures of wool.....	\$25, 718, 592	\$29, 713, 956	\$31, 411, 965
Manufactures of cotton....	8, 501, 512	7, 913, 957	8, 405, 246
Manufactures of silk.....	11, 568, 807	15, 534, 469	16, 194, 080
Manufactures of flax.....	7, 766, 946	10, 381, 059	11, 621, 831
Miscellaneous.....	2, 665, 370	3, 731, 106	3, 956, 630
Total.....	56, 121, 227	67, 274, 547	71, 589, 752

IMPORTS OF GENERAL MERCHANDISE AT NEW YORK FOR 1864.

All imports, except dry goods and specie, are embraced in this heading, and below we give some of the leading articles of this class of importations, that our readers may see the chief of our wants of foreign merchandise, besides dry goods.

	1862.	1863.	1864.
Cigars.....	\$1, 012, 162	\$608, 403	\$788, 237
Cotton.....	.....	.....	11, 157, 449
Coffee.....	8, 517, 284	7, 796, 635	14, 543, 955
Tea.....	8, 676, 245	6, 796, 102	8, 172, 072
Sugar.....	14, 727, 598	14, 534, 579	15, 938, 756
Molasses.....	1, 562, 904	1, 928, 598	3, 426, 790
Wool.....	6, 860, 609	9, 035, 557	10, 915, 217
Furs.....	1, 435, 518	1, 912, 166	2, 053, 786
India-rubber.....	992, 348	1, 407, 536	1, 196, 781
Hides.....	5, 134, 345	5, 966, 395	5, 829, 337
Iron, bars.....	1, 301, 010	2, 457, 575	3, 427, 850
Iron, pig.....	203, 375	397, 916	803, 788
Iron, railroad bars.....	500, 419	1, 484, 973	3, 687, 970
Steel.....	1, 602, 391	2, 063, 842	2, 012, 197
Wines.....	860, 710	1, 198, 283	2, 272, 330
Tin and tin plates.....	4, 174, 651	3, 975, 605	3, 461, 424

The *value* of the foregoing imports is *gold value*, as fixed at the ports from whence imported.

[From the Journal of Commerce, New York.]

Imports of foreign wool at New York during the years 1863 and 1864.

	1863.			1864.		
	No.	Weight.	Entered.	No.	Weight.	Entered.
	<i>Bales.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Bales.</i>	<i>Pounds.</i>	<i>Value.</i>
England	27, 112	11, 426, 648	\$2, 013, 770	15, 463	6, 551, 586	\$1, 312, 317
Buenos Ayres	14, 819	12, 203, 407	1, 819, 690	14, 121	11, 582, 900	1, 780, 496
France	21, 964	7, 075, 227	1, 223, 543	21, 477	5, 837, 840	1, 080, 041
Belgium	2, 135	1, 403, 108	255, 279	1, 745	1, 005, 840	264, 840
Africa	10, 613	4, 964, 345	822, 002	24, 651	10, 973, 155	2, 007, 742
Brazil	2, 009	1, 135, 073	168, 777	2, 115	1, 306, 520	219, 311
Sardinia	82	24, 020	2, 963	.....	.....	.....
Venezuela	7	550	58	.....	.....	.....
Tuscany	571	243, 318	30, 874	257	150, 331	15, 680
British N. A. colonies ..	20	3, 206	955	.....	.....	.....
Bremen	501	183, 032	60, 658	283	96, 396	24, 799
New Grenada	295	56, 449	9, 086	4, 921	6, 362, 122	547, 562
Scotland	31	7, 300	2, 679	.....	.....	.....
Wrecked	98	19, 317	2, 935	.....	.....	.....
Spain	598	191, 625	30, 463	499	137, 324	22, 710
Canary Islands	174	1, 724	1, 734	.....	.....	.....
Italy .....	.....	.....	.....	79	26, 299	5, 124
Hamburg	430	169, 055	49, 331	1, 051	281, 041	38, 847
Gibraltar	221	48, 639	7, 945	421	83, 699	14, 316
Cuba	16	5, 869	894	.....	.....	.....
Portugal	893	180, 354	30, 227	878	175, 889	29, 281
British West Indies ..	24	907	139	340	316, 059	42, 529
Porto Rico .....	.....	.....	.....	410	128, 438	17, 616
Turkey	2, 567	1, 117, 552	185, 004	1, 869	537, 884	113, 803
Dutch West Indies ..	92	34, 739	4, 241	48	15, 932	1, 953
Mexico	3, 786	1, 314, 209	176, 024	1, 108	460, 599	60, 562
Cisplatine Republic ..	1, 270	1, 058, 392	172, 221	3, 923	3, 409, 672	613, 844
Russia	3, 705	1, 387, 479	217, 743	9, 445	3, 505, 189	600, 343
British East Indies ..	2, 188	703, 084	146, 598	3, 586	1, 247, 396	233, 730
British poss. in Africa ..	6, 456	2, 915, 994	526, 012	1, 174	518, 954	93, 892
Chili	3, 160	757, 445	143, 643	3, 527	1, 539, 795	194, 849
Cadiz	151	30, 649	5, 354	.....	.....	.....
Malta	6	2, 772	666	.....	.....	.....
China	147	79, 213	9, 514	36	4, 800	439
Austria .....	.....	.....	.....	66	27, 045	7, 527
Morocco .....	.....	.....	.....	1, 096	356, 133	47, 296
Danish West Indies ..	.....	.....	.....	135	4, 436	512
Greece .....	.....	.....	.....	575	230, 755	26, 330
Total	109, 141	48, 744, 901	8, 121, 032	115, 799	56, 874, 128	9, 418, 291

These values are in gold, and represent the foreign cost.

EXPORTS OF LEADING ARTICLES OF DOMESTIC PRODUCE FROM NEW YORK IN
1862, 1863, AND 1864.

Articles.	1862.	1863.	1864.
Wheat flour.....barrels..	2, 961, 518	2, 527, 338	1, 918, 593
Rye flour.....barrels..	8, 397	5, 461	2, 840
Corn-meal.....barrels..	132, 606	140, 561	105, 142
Wheat.....bushels..	25, 564, 755	15, 424, 889	12, 193, 433
Rye.....bushels..	1, 104, 549	416, 369	588

Oats.....bushels..	210, 669	126, 556	42, 135
Barley.....bushels..	42, 061	52, 439	150
Peas.....bushels..	113, 819	110, 911	186, 154
Corn.....bushels..	12, 020, 848	7, 533, 431	846, 831
Pork.....barrels..	171, 302	192, 903	130, 672
Beef.....barrels..	32, 977	41, 632	36, 548
Beef.....tierces..	27, 765	62, 868	49, 299
Cut meats.....pounds..	145, 102, 758	183, 519, 060	93, 800, 258
Butter.....pounds..	30, 603, 235	23, 060, 799	14, 174, 861
Cheese.....pounds..	39, 200, 439	40, 781, 168	49, 755, 842
Lard.....pounds..	126, 651, 091	120, 881, 862	53, 436, 128
Tallow.....pounds..	43, 866, 920	43, 487, 731	31, 987, 976
Cotton.....bales..	24, 400	13, 945	26, 765
Hay.....bales..	46, 674	19, 986	40, 325
Hops.....bales..	33, 409	25, 409	22, 077
Petroleum.....gallons..	.....	.....	21, 359, 629

EXPORTS OF SPECIE FROM NEW YORK AND SAN FRANCISCO.

	1861.	1862.	1863.	1864.
From New York.....	\$4, 126, 250	\$59, 437, 021	\$49, 754, 066	\$50, 113, 809
From San Francisco..	.....	.....	46, 071, 920	55, 707, 201

Of the above exports from San Francisco there was exported to New York the following: 1861, \$34,370,587; 1862, \$25,010,116; 1863, \$12,207,320; 1864, \$12,903,089.

EXPORT OF PETROLEUM IN 1863 AND 1864 FROM NEW YORK, AND THE COUNTRIES AND PLACES TO WHICH SENT.

In 1862 the petroleum oil trade was in a depressed condition because of the supply outrunning the home demand. But relief was found in the foreign demand for this new product. To show the extent of this demand, both as to amount and the places and countries from which it comes, the following table is here republished from the New York Shipping and Commercial List:

	1863.	1864.
To Liverpool.....	734, 755	2, 156, 851
London.....	1, 430, 710	2, 576, 331
Glasgow, &c.....	368, 402	414, 943
Bristol.....	29, 124	71, 912
Falmouth, England.....	316, 402	623, 176
Grangemouth, England.....	.....	425, 334
Cork, &c.....	3, 310, 362	1, 532, 257
Bowling, England.....	87, 164	.....
Havre.....	2, 324, 017	1, 774, 890
Marseilles.....	1, 982, 075	1, 167, 893
Cette.....	4, 800	.....
Dunkirk.....	232, 803	.....
Dieppe.....	79, 581	46, 000
Rouen.....	.....	143, 646
Antwerp.....	4, 149, 821	2, 692, 974
Bremen.....	971, 905	903, 004
Amsterdam.....	77, 041	436

Hamburg.....	1, 186, 080	1, 466, 155
Rotterdam.....	532, 926	757, 249
Gottenburg.....	33, 813	.....
Cronstadt.....	400, 376	88, 060
Cadiz and Malaga.....	55, 674	33, 284
Tarragona and Alicante.....	16, 823	33, 000
Barcelona.....	25, 500	.....
Gibraltar.....	69, 181	308, 450
Oporto.....	17, 474	2, 339
Palermo.....	7, 983	57, 115
Genoa and Leghorn.....	635, 121	399, 674
Trieste.....	165, 175	3, 000
Alexandria, Egypt.....	4, 000	.....
Lisbon.....	167, 195	64, 662
Canary Islands.....	3, 358	5, 125
Madeira.....	.....	400
Bilboa.....	2, 500	.....
China and East Indies.....	34, 338	36, 942
Africa.....	25, 195	12, 230
Australia.....	377, 884	304, 166
Otago, N. Z.....	10, 810	5, 500
Sidney, N. S. W.....	97, 880	48, 013
Brazil.....	149, 676	160, 152
Mexico.....	112, 986	69, 481
Cuba.....	418, 034	356, 436
Argentine Republic.....	20, 260	24, 470
Cisplatine Republic.....	78, 552	117, 626
Chili.....	92, 550	66, 550
Peru.....	169, 061	256, 407
British Honduras.....	6, 072	440
British Guiana.....	7, 881	15, 104
British West Indies.....	70, 976	60, 931
British North American colonies.....	28, 902	16, 995
Danish West Indies.....	8, 463	31, 503
Dutch West Indies.....	26, 638	12, 143
French West Indies.....	16, 020	9, 104
Hayti.....	7, 088	12, 064
Central America.....	993	456
Venezuela.....	28, 583	15, 455
New Granada.....	57, 490	107, 837
Porto Rico.....	20, 026	59, 439
Total gallons.....	21, 280, 489	19, 547, 604

During the following years there has been exported from other ports as follows :

	1864.	1863.	1862.
From Boston.....gallons..	1,696,307	2,049,431	1,071,100
From Philadelphia.....gallons..	7,760,148	5,595,738	2,800,978
From Baltimore.....gallons..	929,971	915,866	174,830
From Portland.....gallons..	70,762	342,082	120,250
	<u>10,457,188</u>	<u>8,703,117</u>	<u>4,167,158</u>

The total exports from the United States are—

	Gallons.	Value from average prices.
1862.....	10,887,701	.....
1863.....	28,250,721	\$14,616,923
1864.....	31,745,687	23,686,457

AVERAGE PRICES OF PETROLEUM IN 1864 AT NEW YORK AND PHILADELPHIA.

	Crude, (per gallon.)	Refined, (per gallon.)
January.....	31 $\frac{3}{16}$ cents.	52 $\frac{2}{3}$ cents.
February.....	30 $\frac{1}{4}$ "	55 $\frac{3}{4}$ "
March.....	31 $\frac{1}{4}$ "	59 $\frac{1}{2}$ "
April.....	37 $\frac{3}{16}$ "	64 $\frac{7}{16}$ "
May.....	38 "	65 $\frac{1}{2}$ "
June.....	44 $\frac{1}{5}$ "	77 "
July.....	52 $\frac{1}{10}$ "	92 "
August.....	52 $\frac{5}{8}$ "	87 $\frac{3}{4}$ "
September.....	46 $\frac{7}{16}$ "	85 $\frac{3}{8}$ "
October.....	40 $\frac{2}{3}$ "	75 $\frac{3}{4}$ "
November.....	45 $\frac{7}{18}$ "	86 $\frac{3}{10}$ "
December.....	52 $\frac{3}{8}$ "	92 $\frac{9}{16}$ "
Average for 1864.....	41.81	74.61
Average for 1863.....	28.13	51.74

Exports of flour from Baltimore for the last four years.

Destination.	1864.	1863.	1862.	1861.
Great Britain..... barrels	20,509	38,809	57,335	74,632
Hanse Towns.....	1,242	330	2,485	2,722
Holland.....	3,259	3,817	2,994	1,774
France.....				
Brazil.....	170,594	157,286	163,807	157,786
River La Plata.....	12,286	933	15,872	25,313
British North American colonies.....	14,430	33,412	28,817	21,598
Venezuela.....	1,369		1,962	300
West Indies.....	98,969	83,473	81,487	87,473
Other ports.....	11,424	7,331	5,514	4,060
Total.....	333,042	326,450	360,273	375,658

Foreign exports of provisions from Baltimore for four years.

	1864.	1863.	1862.	1861.
Beef, tierces.....	1,316	300	1,750	694
Beef, barrels.....	1,769	1,267	3,174	647
Pork, tierces.....			39	
Pork, barrels.....	5,803	6,173	11,716	7,302
Bacon, boxes.....		10,038	7,692	
Bacon, pounds.....	577,085	742,900	1,240,000	1,805,387
Lard, kegs.....	41,800	59,465	111,330	51,133

Exports of tobacco from Baltimore. (hhds.)

Years.	Bremen.	Rotterdam.	Amsterdam.	France.	All other places.	Total.
1864	15,686	12,287	4,940	7,459	4,660	45,052
1863	11,672	8,135	3,371	6,383	14,576	44,137
1862	15,172	12,557	6,318	4,471	16,929	55,477
1861	32,982	23,172	8,244	5,215	16,924	86,537
1860	24,700	22,700	5,244	6,825	8,869	68,334
1859	19,180	21,735	1,253	8,311	5,495	55,974
1858	16,542	18,059	3,825	16,935	11,173	66,532
1857	18,034	11,711	4,054	7,438	6,325	47,563
1856	20,612	14,215	7,779	4,891	8,301	55,792
1855	9,103	7,510	10	7,527	1,444	36,392

EXPORTS AND PRICES OF PRODUCE.

[From the Journals of Commerce of New York and Chicago.]

Table of exports from New York of the leading agricultural products, from January 1 to January 25, 1865, compared with those of the same time in 1864, and their prices at New York and Chicago on the 25th of January.

The reader will observe that this table commences with the new year. The great falling off in the exportation of wheat flour, wheat, peas, petroleum, cut meats, and butter, will arrest attention. The increased exportation is in leaf and manufactured tobacco, and cheese.

	From Jan. 1 to 25, 1865.	From Jan. 1 to 25, 1864.	Prices on January 25, 1865.	
			At New York.	At Chicago.
Wheat flour barrels..	87,816	127,178	\$9 20 to 11 60	\$7 00to 10 00
Rye flour barrels..	-----	334	8 60 to 9 00	6 85to 7 00
Corn meal barrels..	10,078	9,782	8 80 to 9 00	-----
Wheat bushels..	43,834	882,949	2 05 to 2 38	1 20 to 1 47
Corn bushels..	19,957	6,551	1 77 to 1 87	78 to 83
Rye bushels..	141	105	1 60 to 1 65	98½ to 1 01
Barley bushels..	-----	-----	-----	1 30 0 00
Oats bushels..	3,529	782	1 01 to 1 04	58 to 62
Peas bushels..	4,769	35,543	2 30 to 2 35	-----
Cotton bales..	362	30	5 85 to 0 00	-----
Hay bales..	2,208	1,188	1 70 to 1 85	85 to 1 00
Hops bales..	3,500	3,168	22 to 50	33 to 55
Leaf tobacco .. hogsheads..	11,435	1,876	9 to 35	-----
Leaf tobacco ... packages..	8,540	4,541	-----	-----
Man'fac'd tobacco. pounds..	483,371	131,476	-----	65 to 1 35
Petroleum gallons..	441,886	1,117,637	63 to 64	-----
Pork barrels..	9,111	11,262	35 50 to 38 00	31 00 to 34 00
Beef barrels..	3,550	2,112	19 00 to 24 00	14 00 to 18 00
Beef tierces..	7,069	9,442	-----	-----
Cut meats pounds..	3,651,640	10,221,050	17 to 22	15 to 18
Butter pounds..	1,689,657	2,818,402	32½ to 60	-----
Cheese pounds..	4,358,712	1,805,365	14 to 23½	-----
Lard pounds..	1,661,615	1,982,604	18½ to 22½	20 to 21
Tallow pounds..	3,327,791	3,518,677	15½ to 16	14 to 15½

[From the New York Shipping and Commercial List.]

CONSUMPTION OF FOREIGN AND DOMESTIC CANE SUGAR IN THE UNITED STATES.

		Foreign.	Domestic.	Total.
1864.....	tons..	192,660	28,000	220,660
1863.....	tons..	231,308	53,000	284,308
1862.....	tons..	241,411	184,600	432,411
1861.....	tons..	241,420	122,399	363,819
1860.....	tons..	296,950	118,331	415,281
1859.....	tons..	239,034	192,150	431,184
1858.....	tons..	244,758	143,634	388,492
1857.....	tons..	241,765	39,000	280,765
1856.....	tons..	255,292	123,468	378,760
1855.....	tons..	192,604	185,148	377,752

CONSUMPTION OF CANE MOLASSES IN THE UNITED STATES.

		Total.	Foreign.
1864.....	gallons..	32,581,668	28,753,668
1863.....	gallons..	37,569,088	26,569,088
1862.....	gallons..	62,668,400	25,650,400
1861.....	gallons..	40,191,556	20,383,556
1860.....	gallons..	47,318,877	28,724,205
1859.....	gallons..	54,260,970	28,293,210
1858.....	gallons..	45,169,164	24,795,374
1857.....	gallons..	28,508,784	23,266,404
1856.....	gallons..	39,608,878	23,014,878
1855.....	gallons..	47,266,085	23,532,422

RECEIPTS AND CONSUMPTION OF COFFEE IN THE UNITED STATES.

		Receipts.	Consumption.
1864.....	pounds..	145,304,957	109,086,703
1863.....	pounds..	75,269,417	79,719,641
1862.....	pounds..	98,558,680	88,989,011
1861.....	pounds..	182,244,627	187,045,786
1860.....	pounds..	185,779,689	177,111,923
1859.....	pounds..	248,527,306	222,610,300
1858.....	pounds..	227,656,186	251,255,099
1857.....	pounds..	217,871,820	172,565,934
1856.....	pounds..	230,913,150	218,225,490
1855.....	pounds..	228,214,533	218,378,287

Revenues and expenditures of the United States for 1862, 1863, and 1864, and the estimated for 1865.

	1862.	1863.	1864.	1865.
Customs	\$49,056,397	\$69,059,642	\$102,316,153	\$70,271,092
Lands	152,204	167,617	588,333	642,186
Direct tax	1,795,332	1,485,103	475,649	16,080
Internal revenue		37,640,788	109,741,134	249,562,860
Miscellaneous	931,787	3,046,615	47,511,488	24,020,171
Total revenue	51,935,720	111,399,766	260,632,717	344,512,300
Expenditures	474,744,778	714,709,995	865,234,087	1,248,799,937
Excess of expenditures	422,809,058	603,310,229	604,601,370	904,278,608

DEBTS OF THE STATES.

Pennsylvania	\$39,379,603	Maine	\$5,137,500
Massachusetts	22,893,972	Connecticut	5,000,000
Ohio	13,500,751	Michigan	3,541,129
Illinois	11,178,514	Wisconsin	2,500,000
New York	6,278,954	Vermont	1,642,845

RECEIPTS.

Live stock received at New York for the years 1862, 1863, and 1864.

Years.	Beeves.	Milch cows.	Veals.	Sheep & lambs	Swine.
1862.....	231,402	5,221	36,619	461,105	1,116,044
1863.....	268,860	6,731	36,122	516,972	1,693,138
1864.....	268,599	7,573	78,571	796,379	659,954

The following table shows the States from which the beeves have been received:

	1862.	1863	1864.
New York.....	35,958	28,928	40,202
Illinois.....	101,742	117,638	93,789
Indiana.....	16,555	14,040	8,091
Iowa.....	3,707	8,455	3,606
Virginia.....	117	85	98
Connecticut.....	410	460	688
Massachusetts.....	...	36	348
Wisconsin.....	...	59	126
Ohio.....	30,635	19,688	23,288
Kentucky.....	9,669	7,682	9,245
Michigan.....	7,225	9,054	12,424
Pennsylvania.....	1,550	746	940
Missouri.....	1,729	1,575	2,835
New Jersey.....	411	195	352
Canada.....	523	686	2,979
New Hampshire.....	...	...	11
Kansas.....	...	...	149

Yearly average prices.

	1862.	1863.	1864.
Beeves, per pound.....	\$0 07 $\frac{3}{4}$	\$0 09 $\frac{1}{4}$	\$0 13
Cows, per head.....	34 40	41 00	60 00
Veals, per pound.....	05 $\frac{1}{2}$	06	09 $\frac{1}{2}$
Sheep and lambs, per head.....	4 43	5 89	08 per lb.
Swine, per pound.....	05	05	12 $\frac{1}{2}$

FLOUR AND GRAIN RECEIPTS AT CHICAGO.

Tables showing the receipts of farm products at such centering places as Chicago indicate, usually, the amount of the crops of the country with which its trade is connected. Hence we publish the following table, taken from the New York Shipping and Commercial List.

Flour and grain receipt at Chicago.

	1861.	1862.	1863.	1864.
Flour bbls..	1, 446, 137	1, 663, 391	1, 474, 284	1, 141, 791
Wheat..... bush..	17, 531, 903	13, 728, 116	11, 180, 344	11, 257, 196
Corn do..	26, 543, 233	29, 499, 328	25, 459, 598	13, 623, 087
Oats do..	1, 883, 258	4, 138, 722	9, 139, 525	13, 653, 941
Barley do..	417, 129	872, 053	1, 098, 346	740, 446
Rye do..	479, 005	1, 038, 825	869, 760	969, 116
Total grain bush..	46, 862, 534	49, 227, 044	48, 708, 483	40, 243, 786
Add flour into wheat ... do..	7, 230, 865	8, 331, 953	7, 371, 420	5, 708, 955
Total bushels.....	54, 093, 219	57, 558, 999	56, 079, 903	48, 952, 741

FOREIGN STATISTICS.

*Imports of breadstuffs into Great Britain for eleven months, from January 1
1864, to December 1, 1864.*

	1863.	1864.
Wheat :		
From Russia..... pounds	465,488,016	527,689,120
Prussia do	436,602,432	514,413,984
Denmark do	56,941,248	107,435,328
Mechlenburg do	41,251,648	69,495,777
Hanse Towns..... do	27,972,672	54,240,256
France do	13,477,744	62,103,664
Turkey, Wallachia, and Moldavia. do	43,419,376	49,948,192
Egypt..... do	249,687,536	41,089,440
United States..... do	933,892,960	877,634,240
British North America do	226,339,568	130,438,224
Other countries..... do	50,608,208	45,536,848
Total in pounds.....	2,545,681,408	2,480,025,073
Total in bushels.....	42,428,023	41,333,751
Barley pounds		
Oats do	711,838,176	557,748,352
Peas..... do	135,129,792	116,692,464
Beans..... do	212,182,096	94,341,744
Indian corn, or maize do	1,403,225,040	637,910,224
Total.....	3,204,922,784	1,915,656,960
Wheat meal and flour :		
From Hanse Towns..... pounds	30,157,344	34,426,102
France..... do	118,683,488	185,864,448
United States do	277,109,840	194,590,704
British North America..... do	93,744,560	52,949,120
Other countries do	13,010,144	12,684,784
Total in pounds.....	532,705,376	480,515,158
Indian corn meal.....	1,079,680	450,128

The average prices for different periods were as follows :

	Week ending Dec. 24, 1864.	Same week in 1863.	For 6 weeks prior to Dec. 24, 1864.
Wheat, per quarter (8 bushels).....	\$9, 08	\$9, 74	\$9, 20
Barley, “ “	6, 72	7, 94	6, 92
Oats, “ “	4, 58	4, 64	4, 74
Rye, “ “	7, 28	7, 46	7, 30
Beans, “ “	8, 70	8, 44	8, 96
Peas, “ “	8, 52	8, 12	8, 44

The wheat crop of France for 1864.

The consul of the United States at Havre (France) writes to this department that an *average* crop of wheat in France is 100,500,000 heefolitres, equal to 284,750,000 bushels, and that the crop of 1864 is 14,666,666 bushels less than this average. Consequently it would be 270,583,334 bushels. This makes the wheat crop of France in 1864 about 109,887,511 bushels greater than that of the loyal States.

The acreage of the wheat lands in France for 1864 is stated by our consul to be 16,415,000 acres, making the average yield per acre $16\frac{1}{2}$ bushels. This is a higher average yield than in this country. We doubt its correctness, and think the *average* wheat crop in France cannot exceed 215,000,000 bushels.

TABLE OF IMMIGRATION.

In the bi-monthly report for September and October we gave the number of emigrants for the year ending September 30, 1864. This number was 189,713.

Through the courtesy of the collectors at the custom-houses of New York and Philadelphia, and of the general agent of immigration at Boston, this department has received the following returns for the quarter embraced in the months of October, November, and December, 1864 :

NEW YORK.

	Male.	Female.	Total.
Arrivals during October.....	9, 252	7, 506	16, 758
Arrivals during November.....	6, 713	5, 433	12, 146
Arrivals during December.....	3, 124	2, 333	5, 457
Total for the quarter.....	<u>19, 089</u>	<u>15, 272</u>	<u>34, 361</u>

PHILADELPHIA.

Arrivals during October.....	5
Arrivals during November.....	8
Arrivals during December.....	480
Total for the quarter.....	<u>493</u>

BOSTON.

Arrivals during October.....	986
Arrivals during November.....	621
Arrivals during December.....	343
Total for the quarter.....	<u>1, 950</u>
Total immigration.....	<u>36, 840</u>

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

DECEMBER, 1864.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths.) for December, 1864, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
				o		o	o	In.
North Perry	Washington	Wm. D. Dana.....	29	43	23	-15	22.5	5.56
Steuben	do	J. D. Parker.....	7	45	23	-12	23.9	9.37
Lee	Penobscot	Edwin Pitman.....	29	47	24	-24	22.6	3.80
West Waterville	Kennebec	B. F. Wilbur	7	48	23	-9	22.9	3.60
Lisbon	Androscoggin.....	Asa P. Moore.....	28	49	23	-11	23.8	4.25
Cornishville	York	G. W. Guptill	7	44	23	-11	23.8	4.87
Cornish	do	Silas West.....	1	42	23	-12	22.9	4.68
NEW HAMPSHIRE.								
Shelburne	Coos	F. Odell.....	27	44	23	-11	23.1	3.42
Stratford	do	Branch Brown.....	7	44	23	-19	19.5	5.19
North Barnstead	Belknap	Chas. H. Pitman.....			23	-10		
Claremont	Sullivan.....	Arthur Chase	7	50	23	-18	25.4	2.97
Do	do	S. O. Mead	7	52	23	-7	25.7	
VERMONT.								
Lunenburg	Essex	H. A. Cutting	28	46	20, 23	-10	22.6	
Craftsbury	Orleans	Jas. A. Paddock	7	43	23	-16	19.5	5.00
Middlebury	Addison	H. A. Sheldon	7	54	23	-14	26.6	3.62
MASSACHUSETTS.								
Sandwich	Barnstable	N. Barrows, M. D. ...	1, 3	51	23	-3	33.2	4.41
Topsfield	Essex	A. M. Merriam	7	53	23	-4	33.4	4.41
Newbury	do	Jno. H. Caldwell	7	48	23	-10	28.7	
New Bedford	Bristol	Sam'l Rodman.....	7	53	23	0	33.0	4.18
State Lunatic Hosp'l ..	Worcester	F. H. Rice	7	53	23	-4	29.5	3.67
Mendon	do	Jno. G. Metcalf, M.D.	7	54	23	-4	24.6	
Baldwinsville	do	Rev. E. Dewhurst ..	7	48	23	-15	24.3	4.48
Amherst	Hampshire	Prof. E. S. Snell.....	7	51	23	0	30.2	4.63
Springfield	Hampden	J. Weatherhead	1	52	23	-5	28.6	4.45
Westfield	do	Rev. E. Davis	1	51	23	-2	28.0	4.98
Williams College ..	Berkshire	Prof. A. Hopkins	7	51	23	-6	26.6	4.18
Richmond	do	Wm. Bacon	28	53	23	-4	25.6	9.67

Table showing the range of the thermometer, &c., for December—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	1	49	23	— 1	28.3	6.22
Columbia	Tolland	Wm. H. Yeomans ..	1	60	23	— 4	31.1	.....
Middletown	Middlesex	Prof. Jno. Johnston.	7	55	23	0	31.0	3.99
Colebrook	Litchfield	Charlotte Rockwell.	7	52	23	—10	26.0	.....
NEW YORK.								
Moriches	Suffolk	Mrs. and Miss Smith.	1	61	23	9	37.0	8.21
South Hartford	Washington	G. M. Ingalsbe	3	48	23	—24	27.6	4.40
Newburg	Orange	James H. Gardiner ..	1	57	22	10	.....	7.00
Fishkill	Dutchess	Wm. H. Denning ..	1	54	23	8	30.9	2.70
Garrison's	Putnam	Thos. B. Arden	7	53	23	9	24.6	3.97
White Plains	Westchester	Oliver R. Willis	3	57	23	3	33.7	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris ..	7	58	23	11	37.0	5.88
St. Xavier's College.	do	Rev. John Aubier	7	56	22	11	34.7	.....
Flatbush	Kings	Eli T. Mack	1	55	12, 23	10	32.6	4.01
Schenectady	Schenectady	Harmon V. Swart	7	54	23	— 2	28.7	.....
Gouverneur	St. Lawrence	C. H. Russell	3	49	23	—25	25.1	4.29
Clinton	Oneida	Dr. H. M. Paine	7	54	15	0	29.9	2.38
Oneida	Madison	Dr. S. Spooner	7	52	15	1	28.6	4.16
Theresa	Jefferson	S. O. Gregory	3	48	23	—29	23.1	5.18
Oswego	Oswego	Wm. S. Malcolm	3	54	13, 22, 23	— 7	28.7	4.24
Palermo	do	E. B. Bartlett	3	51	15, 23	0	25.0	5.10
Baldwinsville	Onondaga	John Bowman	3	52	22	3	27.1	.....
Skaneateles	do	W. M. Beauchamp	3	51	23	3	26.4	.....
Nichols	Tioga	Robert Howell	3, 7	54	15, 22	4	30.2	.....
Auburn	Cayuga	John B. Dill	3	56	8, 22, 23	8	28.2	.....
Palmira	Wayne	Stephen Hyde	3	55	8	13	33.2	.....
Geneva	Ontario	Rev. W. D. Wilson ..	3	50	22	6	28.9	1.45
Rochester	Monroe	Prof. C. Dewey	3	54	23	7	28.7	4.82
Wilson	Niagara	Dr. E. S. Holmes	27	50	8, 22	9	27.6	.....
Buffalo	Erie	Wm. Ives	3	50	8, 15	6	28.5	4.78
Jamestown	Chautauqua	Rev. S. W. Roe, M.D.	2	52	11	2	25.9	6.00
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	1	56	12	6	33.3	2.37
Newark	Essex	W. A. Whitehead	1	56	23	5	32.7	4.76
New Brunswick	Middlesex	G. W. Thompson	7	58	23	8	33.1	.....
Burlington	Burlington	John C. Deacon	7	58	12	8	33.6	3.90
Mount Holly	do	M. J. Rhees, M. D ..	3, 7	50	12	14	35.4	.....
Progress	do	Thos. J. Beans	1	54	12, 13	11	33.4	5.17
Haddonfield	Camden	Jas. S. Lippincott	7	62	23	14	35.0	5.24
Greenwich	Cumberland	R. C. Sheppard	3	60	12, 23	16	35.7	3.84
PENNSYLVANIA.								
Fallsington	Bucks	Ebenezer Hance	1	59	23	10	35.0	4.30
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	7	59	12	12	35.8	4.75
Germantown	do	Thos. Meehan	1, 4	51	23	7	.....	.....
Mooreland	Montgomery	Anna Spencer	1	55	23	8	32.9	2.59
Nazareth	Northampton	L. E. Ricksecker	1	54	23	2	31.2	.....

Table showing the range of the thermometer, &c., for December—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
PENNSYLVANIA—C'd.								
				°		°	°	In.
North Whitehall	Lehigh	Edward Kohler	1	52	15, 23	2	32.3	2.15
West Chester	Chester	T. H. Aldrich	1	61	12	8	34.9	.....
Silver Spring	Lancaster	H. G. Bruckhart	7	56	25	8	33.3	.....
Mountjoy	do	J. R. Hoffer	3	58	12	10	35.9	4.00
Berwick	Columbia	John Eggert	7	55	23	6	33.3	1.43
Harrisburg	Dauphin	Dr. John Heisely	1	53	12	15	38.7	3.26
Tioga	Tioga	E. T. Bentley	7	53	9, 15	2	29.7	2.60
Gettysburg	Adams	M. and H. E. Jacobs	1	56	25	6	31.1	3.42
Fleming	Center	Samuel Brugger	2, 7	50	9	3	28.6	3.14
Pennsville	Clearfield	Elisha Fenton	3	55	9	4	26.8	5.02
Blairsville	Indiana	W. R. Boyers	16	40	12	— 5	24.6	3.08
Connellsville	Fayette	John Taylor	2	60	9	1	32.4	.....
Canonsburg	Washington	Rev. W. Smith, D.D.	7	56	9	3	29.7	3.76
DELAWARE.								
Wilmington	New Castle	U. D. Hedges, M.D.	1	56	12	10	36.4	7.45
MARYLAND.								
Annapolis	Anne Arundel	Wm. R. Goodman	7	60	12	14	38.0	4.83
Oakland	Howard	Philip Tabb	1, 3	56	23	6	33.5	.....
Sykesville	Carroll	Miss H. M. Baer	3, 7	55	9, 12	10	30.1	3.55
DIST. OF COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	1, 3	57	9, 12, 23	18	36.3	3.00
SOUTH CAROLINA.								
Hilton Head	Beaufort	Capt. C. R. Suter	3	75	23	25	54.0	1.98
Beaufort	do	M. M. Marsh, M.D.	17	78	12	23	53.5	1.58
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	2	60	12	— 1	33.3	5.18
OHIO.								
Saybrook	Ashtabula	Jas. B. Fraser	2, 3	55	11	1	28.0	2.70
Austintown	do	E. D. Winchester	2	54	11	2	30.0	2.90
East Fairfield	Columbiana	S. B. McMillan	2	54	12	8	29.2	4.53
New Lisbon	do	J. F. Benner	2	60	11	2	31.7	2.32
Steubenville	Jefferson	R. Marsh		60		6	31.9	3.52
Welshfield	Geauga	B. F. Abell, A. M.	2	60	8	7	27.9	5.22
Milnersville	Guernsey	Rev. D. Thompson	2	60	23	3	29.3	3.66
Cleveland	Cuyahoga	Mr. and Mrs. G. A. Hyde	2	56	8, 9, 23	12	30.1	2.72
Cuyahoga Falls	Summit	D. M. Rankin	2	53	11	— 3	26.2	.....
Wooster	Wayne	Martin Winger	2	56	11	— 1	27.9	.....
Smithville	do	J. H. Myers	2	54	11	0	28.7	.....
Gallipolis	Gallia	A. P. Rodgers	7	65	23	8	34.2	4.34
Kelley's Island	Erie	Geo. C. Huntington	2	56	23	7	28.7	2.10
Norwalk	Huron	Rev. A. Newton	2	58	11	2	28.0	1.13
Westerville	Franklin	Pf. H. A. Thompson	2	55	23	— 5	28.2	2.24

Table showing the range of the thermometer, &c., for December—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
OHIO—Continued.								
Kingston	Ross	Pf. John Haywood..	3	59	11	4	31.5	3.76
Portsmouth.....	Scioto	L. Engelbrecht	3	64	11	9	34.3	4.35
Urbana University..	Champaign ..	Pf. M. G. Williams..	2	57	23	— 4	27.7	3.64
Ripley	Brown	Dr. G. Bambach	2	60	12	5	34.8	5.31
Bethel.....	Clermont.....	Geo. W. Crane	6, 7	53	11, 23	0	31.3	6.30
Eaton	Preble.....	Miss Ollittippa Larsh.	2	56	12, 23	— 6	26.4	3.19
College Hill	Hamilton.....	John W. Hammitt....	2	55	23	— 3	29.2	.....
Do.....	do.....	Isaiah H. Wilson.....	3	69	23	0	31.4	5.15
Cincinnati.....	do.....	R. C. Phillips.....	2	60	12	9	35.8	3.15
Do.....	do.....	George W. Harper....	2	58	12	1	33.0	2.94
MICHIGAN.								
Pontiac	Oakland.....	James A. Weeks.....	2	52	9	— 8	26.2	.....
Monroe.....	Monroe.....	Miss F. E. Whelpley..	2	50	8, 9	0	26.9	2.33
State Agric'l College.	Ingham.....	Prof. R. C. Kedzie....	2	51	9	—17	24.4	3.20
Garlick	Ontonagon.....	Edwin Ellis.....	1	42	8	— 8	.....	.....
INDIANA.								
Vevay	Switzerland ..	Chas. G. Boerner	2	58	12	5	35.4	.....
Pennville.....	Jay	Miriam Griest	7	46	23	—16	21.5	1.25
New Castle.....	Henry	T. B. Redding, A. M.	2	58	23	—10	26.2	3.15
South Bend.....	St. Joseph.....	Reuben Burroughs....	3	56	9	—17	23.5	4.85
Indianapolis.....	Marion.....	W. W. Butterfield....	2	60	12, 23	— 3	27.5	.....
Do.....	do.....	R. Mayhew.....	2	60	12	— 5	27.7	3.42
New Harmony.....	Posey	John Chappellsmith..	2	67	23	0	31.9	3.42
ILLINOIS.								
Chicago	Cook	Samuel Brookes	2	58	8	—20	18.2	.....
Evanston	do.....	A. D. Langworthy.....	.....	.....	8	—13	.....	.....
Riley	McHenry	E. Babcock	2	53	9	—24	19.2	2.56
Sandwich	DeKalb.....	Dr. N. E. Ballou.....	2	57	8	—22	19.3	2.25
Clinton.....	DeWitt.....	C. H. Moore.....	.....	.....	22	—10	.....	.....
Ottawa.....	La Salle.....	Mrs. E. H. Merwin....	2	63	9	—23	18.7	3.49
Winnebago.....	Winnebago	James W. Tolman	2	56	9	—20	17.2	2.76
Tiskilwa	Bureau.....	Verry Aldrich	2	58	9	—13	21.8	.....
Wyanet.....	do.....	Mr. and Miss Phelps..	2	62	9	—20	21.1	3.69
Hennepin.....	Putnam.....	Smiley Shepherd.....	2	57	9	—20	20.0	.....
Peoria.....	Peoria.....	Frederick Brendel....	2	67	8	— 6	25.6	3.06
Elmore.....	do.....	W. H. Adams .....	.....	.....	.....	.....	.....	4.12
Pekin	Tazewell.....	J. H. Riblett.....	2	67	9, 22	— 8	24.3	2.73
Hoyleston.....	Washington ..	J. Ellsworth	2	70	12	— 3	30.0	3.30
Waverly.....	Morgan.....	Timothy Dudley.....	2	70	22	— 6	26.2	2.75
Galesburg.....	Knox.....	Rev. W. Livingston..	2	64	8, 9	—13	22.4	4.58
Manchester.....	Scott	Dr. and Miss Grant....	2	66	11, 22	— 2	26.5	1.94
Augusta.....	Hancock.....	S. B. Mead, M. D.....	2	65	8, 11, 22	— 7	22.7	3.55
WISCONSIN.								
Manitowoc.....	Manitowoc.....	Jacob Lüps.....	2	48	8, 9	—16	22.4	1.85
Milwaukee.....	Milwaukee.....	I. A. Lapham, L.L.D.	2	53	8	—15	20.1	1.99
Green Bay.....	Brown	Friedrich Deckner....	1	49	9	—16	18.0	2.17

Table showing the range of the thermometer, &c., for December—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
WISCONSIN—Cont'd.								
Geneva.....	Walworth.....	William H. Whiting.	2	56	9	—19	17.6	In.
Delavan.....	do.....	Leveus Eddy.....	2	55	8, 9	—21	17.5	2.39
Waupacca.....	Waupacca.....	H. C. Mead.....	1	49	8	—20	18.8	.....
Embarrass.....	do.....	Edward E. Breed.....	1, 2	42	8, 9	—18	17.9	2.25
Beloit.....	Rock.....	Henry D. Porter.....	1	50	9	—22	16.5	1.90
MINNESOTA.								
Beaver Bay.....	Lake.....	C. Wieland.....	1	40	8	—21	12.3	0.64
St. Paul.....	Ramsey.....	Rev. A. B. Paterson.	1	46	14	—24	12.0	0.71
Minneapolis.....	Hennepin.....	Wm. Cheney.....	1	50	8	—24	11.0	.....
New Ulm.....	Brown.....	Charles Roos.....	1	47	8, 22	—23	9.8	1.08
IOWA.								
Lyons.....	Clinton.....	Dr. P. J. Farnsworth	2	52	8	—16	18.2	5.30
Muscatine.....	Muscatine.....	J. P. Walton.....	2	55	8	—20	18.5	2.12
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	2	52	8	—19	17.4	1.82
Guttenberg.....	Clayton.....	Philip Dorweiler.....	2	50	9	—18	15.8	2.72
Monticello.....	Jones.....	Chauncey Mead.....	2	52	9	—29	17.5	1.83
Independence.....	Buchanan.....	A. C. Wheaton.....	2	51	8	—25	14.7	2.05
Do.....	do.....	D. S. Deering.....	2	51	14	—16	17.5	.....
Mount Vernon.....	Linn.....	Prof. A. Collins.....	1	53	8	—17	16.6	.....
Iowa City.....	Johnson.....	Theo. S. Parvin, A.M.	2	54	8	—14	19.3	2.03
Mount Pleasant.....	Henry.....	Rev. E. L. Briggs.....	2	62	8	—16	19.9	2.20
Fort Madison.....	Lee.....	Daniel McCready.....	2	63	8	—12	21.6	2.72
Waterloo.....	Black Hawk.....	T. Steed.....	2	50	14	—18	17.2	.....
Iowa Falls.....	Hardin.....	N. Townsend.....	2	47	.....	.....	.....	.....
Algona.....	Kossuth.....	Dr. and Miss McCoy.	1, 2, 26	40	8, 22	—18	13.4	0.13
MISSOURI.								
Allenton.....	St. Louis.....	Aug. Fendler.....	2	61	23	—10	28.2	1.63
Athens.....	Clark.....	J. T. Caldwell.....	25	58	11	—8	.....	2.10
Canton.....	Lewis.....	George P. Ray.....	2	63	8, 22	—8	23.2	4.06
Harrisonville.....	Cass.....	John Christian.....	1, 2	56	22	—8	24.6	2.25
Easton.....	Buchanan.....	P. B. Sibley.....	2	53	11	—11	21.9	0.94
KANSAS.								
State Agric'l College.	Riley.....	Henry L. Denison.....	1	58	11	—6	28.0	1.11
Fort Riley.....	Davis.....	James H. Pine.....	1	68	11	—3	28.2	.....
NEBRASKA TER.								
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton.	1	50	8	—14	19.9	0.34
Addenda—Nov., 1864.								
St. George.....	Washington.....	H. Pearce.....	14, 15	77	19	28	55.3	1.03

Table showing the average temperature and fall of rain (in inches and tenths) for the month of December in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1863.		Averages, 1864.	
		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	6	25.7	4.5	30.5	3.8	36.5	4.6	39.8	3.1	46.5	5.9	21.2	4.4	21.7	3.9	23.3	5.2
New Hampshire.....	4	26.8	5.4	17.7	3.1	28.7	4.3	19.8	2.9	17.7	4.5	21.7	4.0	21.7	3.5	23.4	3.9
Vermont.....	4	24.6	2.5	16.9	2.3	27.1	3.4	19.4	2.4	16.3	2.9	20.9	2.7	17.3	3.2	24.3	4.3
Massachusetts.....	12	30.3	5.8	24.6	4.2	33.0	5.2	29.1	3.8	25.1	5.0	28.4	4.8	26.9	4.4	28.8	4.9
Rhode Island.....	1	32.2	6.1	25.5	5.8	34.6	5.2	32.1	3.5	28.4	3.5	30.5	4.8	28.5	5.7		
Connecticut.....	5	32.0	6.3	26.8	5.9	38.2	6.8	29.2	3.7	25.6	3.5	30.3	5.2	27.8	5.1	29.1	5.1
New York.....	18	29.1	3.5	25.1	3.4	33.1	4.0	29.2	3.3	23.5	3.9	28.0	3.6	28.7	3.8	29.3	4.6
New Jersey.....	3	34.3	5.1	30.9	3.6	35.1	5.4	34.0	4.2	30.8	4.3	33.1	4.5	31.4	4.4	34.0	4.2
Pennsylvania.....	20	30.7	4.9	28.4	2.9	36.6	4.9	34.8	1.5	29.1	4.0	31.9	3.6	34.7	4.0	36.4	7.5
Delaware.....	1			31.5	4.7	43.7	6.4		6.4		2.6	40.4	4.9	37.2	4.0	36.4	7.5
Maryland.....	5	35.4	1.1	31.2	2.8	38.8	6.0	38.1	4.0	33.4	3.7	35.4	3.5	35.3	4.4	33.9	4.2
District of Columbia.....	1	37.1	3.2	31.8	2.3	39.9	5.5	39.9	5.8	34.6	6.2	35.8	4.6	35.4	3.7	36.3	3.0
South Carolina.....	4	42.7	6.1	46.6	3.4	34.7	4.7	34.7	3.4	49.7	3.6	50.9	4.2			53.8	1.8
Tennessee.....	1	38.1	2.3	31.2	5.1	46.6	5.8	46.1	8.5	33.2	6.6	39.4	5.5	40.0	8.6		
Kentucky.....	4	36.4	3.3	30.2	4.5	42.4	5.8	43.4	7.9	30.5	6.6	36.6	5.6	38.9	4.5	33.3	5.2
Ohio.....	20	31.6	3.7	24.7	3.3	37.1	3.5	36.7	5.1	25.6	4.3	31.1	4.0	35.0	4.2	33.9	3.7
Michigan.....	8	25.5	3.5	21.0	2.3	31.5	1.7	30.1	2.1	20.0	2.5	25.6	2.6	31.9	3.8	25.6	2.8
Indiana.....	4	31.7	2.5	28.8	3.3	37.4	2.2	39.2	6.0	26.8	4.3	32.8	2.8	34.9	3.5	27.7	3.2
Illinois.....	14	26.6	3.6	22.0	4.2	34.7	1.4	30.6	3.0	18.1	1.6	26.4	2.8	29.9	4.6	22.2	3.2
Wisconsin.....	10	19.5	2.2	15.6	4.1	29.9	2.3	24.0	2.0	14.0	0.9	11.8	2.3	27.6	4.6	18.6	2.1
Minnesota.....	4	9.9	1.3	4.9		23.4	1.4	14.7	1.3	5.9	0.6	20.6	1.2	20.6	1.3	11.3	0.8
Iowa.....	7	20.2	2.1	15.2	4.5	31.4	1.3	23.9	1.9	15.2	0.6	21.2	2.1	23.9	5.5	17.5	2.3
Missouri.....	3	32.1	3.1	29.8	4.3	32.3	0.6	32.3	8.5	24.5	2.4	32.9	4.2	31.1	5.3	24.5	3.0
Nebraska Territory.....	3					32.1	0.8	29.1	0.9	22.6	0.5	29.6	0.7	21.9	3.4	19.9	0.3
Kansas.....	3					37.8	0.9	29.9	1.2	21.9	0.2	20.9	0.5	27.8	4.0	28.1	1.1
California.....	3		0.0	43.9	2.4	45.6	2.5	45.6	5.5	45.8	2.9	46.2	2.6	44.2	3.5		

There was very little clear weather in December, and at many places it rained or snowed on more than half the days of the month. The two heaviest storms were about the 10th and 21st. They both prevailed from Iowa, or further west, to the Atlantic coast.

NOTES OF THE WEATHER.

Lisbon, Maine.—December 13.—Sabbati's stream freezes so as to bear man.—23d, mail-carrier crosses the Androscoggin with horse.

Lee, Maine.—December 10, 11.—Wild geese going south.

Shelburne, New Hampshire.—December 1.—Farmers ploughing. 9th, considerable anchor ice in the river; the first time there has been much. 13th, Androscoggin river closed. 19th, ground frozen to the depth of twelve inches, measured. 23d, saw a man who had not travelled over forty rods, and had his nose frozen.

Claremont, New Hampshire.—December 27, 28.—Heavy and curious fog covered the earth, followed by rain, under both of which the snow rapidly vanished, leaving the sleighing thin and poor.

Lunenburg, Vermont.—December 21.—We are having a great blow, snow drifting badly, the river and pond closed. 15th, swift water not yet frozen. 31st, roads in bad condition; bare of snow in spots, and full of holes.

Baldwinsville, Massachusetts.—December 21.—Wind blew furiously this afternoon and evening; snowed all day. Barometer very low, falling nearly an inch from 7 a. m. to 2 p. m.

Mendon, Massachusetts.—Good sleighing from the 12th to the end of the month; all the snows came moist, so there were no drifts.

Topshfield, Massachusetts.—December 31.—The month has been very stormy. There are now seven inches of snow, and the ground is frozen to the depth of three-quarters of an inch.

New Bedford, Massachusetts.—December 23.—River frozen north of the bridge. 27th, ice in the river broken up. 31st, no ice in the river; very little frost in the ground.

Sandwich, Massachusetts.—December 31.—Sandwich pond froze over on the night of the 12th, and still remains frozen. There has been no sleighing this month, the snow in all cases having turned to rain, or melted almost as soon as it had fallen.

Middletown, Connecticut.—December 12.—Sleighs moving freely. 13th, Connecticut river closed with ice.

Skaneateles, New York.—December 3.—Tornado from west by south at 3 p. m., lasted not over five minutes; in half an hour another came from the same direction; appeared to be less than half a mile in breadth. 10th, five inches of very dry snow fell last night. 22d, lake frozen a considerable distance up. 31st, snow fell on eighteen days this month.

Moriches, New York.—December 17.—At 9 p. m. the sky was entirely clear, but in a few minutes I was suddenly prevented by clouds from making telescopic observations. It was the most sudden change from an entirely clear sky to an entirely cloudy one that I remember to have ever noticed.

South Trenton, New York.—December 4.—Ground not frozen; many are ploughing. 12th, ground frozen hard. 29th, ground frozen four inches deep. 31st, snow eleven inches on the level.

Nichols, New York.—December 23.—Susquehanna river closed with ice.

Theresa, New York.—December 8.—The ground froze. 12th, river frozen over.

Garrison's, New York.—December 31.—The month has been remarkably wet. Snow has continued to cover the ground since the first fall on the 11th; and the ground being but slightly frozen at that time, the frost has not gone any depth worth naming. The river still continues open at this point.

Progress, New Jersey.—December 9, 10.—First snow-storm of the season. 15th, Rancocus river closed by ice; opened on the 19th. Delaware river obstructed by ice on the 15th; a few steam-tugs force their way through. Delaware river frozen over at this place on the night of the 23d; broke up the 26th.

Burlington, New Jersey.—December 31.—The ground has not been frozen more than three inches deep, being protected by the snow. The warmth of the 28th and 29th took all the frost out of the ground. It froze moderately on the night of the 29th, and is now covered by a snow of some six inches in depth.

Passaic Valley, New Jersey.—December 13.—Temperature of a spring near the Passaic river, and which is covered by the river after heavy rains, 49° ; temperature of the atmosphere at the same time 18° .

Germantown, Pennsylvania.—December 31.—The ground has been covered with snow since the 10th, thus keeping the ground unfrozen, and it is now quite free from frost.

Byberry, Pennsylvania.—December 9.—Ground frozen hard; ice frozen on ponds hard enough to bear. 14th, ice three inches thick.

Tioga, Pennsylvania.—December 15.—River frozen over.

Philadelphia, Pennsylvania.—The ground was covered with snow from the night of the 9th of December until the 7th of January, 1865, a period of four weeks—very long for Philadelphia.

Fallsington, Pennsylvania.—December 12.—Delaware river closed first time this winter at Trenton, New Jersey. 18th, river broke up. 23d, Delaware closed the second time at Trenton; broke up the 28th.

Horsham, Pennsylvania.—Quite a heavy snow fell on the night of December 10—about three inches—the first of the season, and unusually late to have had none.

Fleming, Pennsylvania.—December 9.—Bald Eagle creek is freezing over for the first time this season.

Beaufort, South Carolina.—All the early part of the month excessive dews; eaves dripping as if from rain; on the 3d, at 9 a. m., window blinds of veranda, twelve feet under a roof, dripping freely. December 8, thermometer at 2 p. m., in shade, on south veranda, at 88° . 10th, lightning in the west. 27th, lightning northwest from a cloudless sky. 28th, lightning throughout the heavens at 3 and 4 a. m.

Hilton Head, South Carolina.—December 12.—Ice an inch and a quarter thick frozen over pail of water in open air. 27th, in evening diffused and distant lightning. 28th, shower in forenoon, accompanied with quite heavy thunder and lightning.

Portsmouth, Ohio.—December 12.—Ice coming out of Scioto river in large cakes; some ice in Ohio river. 19, 20, river rising very fast. 21, snow, sleet, frozen rain and hail; heavy winds; river very rough; some damage to shipping; tow-path covered; barometer at 7 a. m. lowest since in my possession—four years. 22d, river falling; steamboats compelled to lay over on account of storm and high water. 26th, ice running out of Scioto river. 31st, Cloudiness prevailed during this month more than any I have on record.

Cleveland, Ohio.—December 12.—Canal froze over. 13th, river froze over.

Urbana, Ohio.—December 16.—Ice five inches. 24th, ice six inches. 26th, snow off, covered the ground four days.

Cincinnati, Ohio.—December 16.—Darkest afternoon I ever witnessed.

Kelley's Island, Ohio.—December 20.—No lights in light-houses; considerable ice in lake; navigation has been virtually closed for about a week. Schooner Zouave came from Sandusky on the 10th, and went to Put-in bay, and could not get out, and is now frozen in there. 31st, there has been a greater amount of cloudiness the past month than in any month for five years.

Indianapolis, Indiana.—December 8.—Temperature of the air, six feet above the surface of the earth, at 7 a. m., 11° ; temperature of water in a well, 49° ; temperature of air at the surface of the water, 45° . Depth of well to surface of water, 19 feet 3 inches; depth of water, 2 feet.—*Butterfield.*

Indianapolis, Indiana.—December 2.—Lightning south and southwest from 8 to 9 p. m. Average temperature of December, 1861, $35^{\circ}.57$; 1862, $36^{\circ}.71$; 1863, $34^{\circ}.53$; 1864, $27^{\circ}.70$. Amount of rain December, 1861, 1.96 inches; 1862, 5.74 inches; 1863, 3.14 inches; 1864, 3.42 inches.—*Mayhew.*

Pennville, Indiana.—December 2.—Thunder-storm at 9 p. m.; vivid lightning at the southwest.

Winnebago, Illinois.—December 2.—Lightning in the east and southeast, below the horizon, from 7 to 8 p. m.

Clinton, Illinois.—December 2.—Bright zigzag lightning in the southeast at 7 p. m.

Ottawa, Illinois.—December 4.—Wild geese flying eastward this morning.

Alton, Missouri.—December 2.—Thunder and lightning from 2.25 to 2.35 p. m.

Athens, Missouri.—December 1.—Heavy clouds hanging in the northwest; quite sharp lightning and heavy thunder for the season of the year, from morning till noon, 26th, fog from 5 to 10 a. m.; the heaviest fog for some years, and rather uncommon at this season of the year in this country.

Harrisonville, Missouri.—December 1.—Distant thunder, and diffuse lightning south at $6\frac{1}{2}$ p. m., thunder and diffuse lightning SW.; between 8 and 9 p. m.; a very heavy peal of thunder south at 9 p. m., and heavy shower of rain; heavy peals of thunder overhead at 10 p. m., in about half an hour moved NW. and died away distant.

Manitowoc, Wisconsin.—December 7.—Manitowoc river closed again.

Milwaukee, Wisconsin.—December 8.—Milwaukee river closed with ice.

Muscatine, Iowa.—December 1.—Steamer R. P. Converse passed down the Mississippi river to-day. 9th, Ice stopped running. 12th, A team crossed the river on the ice. 31st, Ice fifteen inches on the channel. From six to twelve inches of frost in the ground.

Dubuque, Iowa.—December 8.—Mississippi river closed with ice.

Spring Grove, Iowa.—December 1.—The ice is all out of Iowa river, and frost out of the ground.

Lyons, Iowa.—Lightning at the southeast at 8 p. m.; no cloud in sight. 8th, The Mississippi river frozen over this morning. 9th, Crossing on the ice.

Manhattan, Kansas.—December 1.—Lightning in the east and south from 4.30 to 5 p. m., and at 9 p. m.

Bellerue, Nebraska.—December 2.—The last boat went down the Missouri river. The river was closed for a few days in November, and one boat came up after it opened.

New Ulm, Minnesota.—December 7.—Minnesota river frozen fast for teams to cross safely. December 31.—All snow disappeared except in shaded places.

RAIN.

Depth of rain and melted snow collected in the rain gauge kept by the Winnipiscogee Lake Cotton and Woollen Manufacturing Company at the outlet of Lake Winnipiscogee, in the town of Laconia, New Hampshire.

Month.	1860.	1861.	1862.	1863.	1864.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
January .....	.70	4.97	6.37	5.24	2.83
February	3.62	2.53	3.97	3.72	1.77
March	2.09	2.69	4.99	5.60	4.01
April	1.35	2.86	2.05	4.20	3.41
May	1.94	4.15	2.57	2.42	2.86
June	3.86	2.09	4.41	1.39	.51
July	5.05	3.70	3.19	8.16	.98
August	4.24	1.86	4.67	4.56	4.73
September	4.63	3.71	3.65	2.93	2.89
October	3.28	5.19	4.42	3.74	3.97
November	5.74	4.99	6.08	4.98	5.63
December	3.93	2.72	2.90	5.41	4.64
Total	40.43	41.46	49.27	52.35	38.23

MONTHLY REPORT

OF

THE AGRICULTURAL DEPARTMENT

FOR

F E B R U A R Y

1865.

WASHINGTON:
GOVERNMENT PRINTING OFFICE
1865.

MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Washington, February, 1865.

This report contains various articles, arising out of the correspondence of the department on topics interesting to the farmer, and demanding of him such an effort on his part as will tend to lessen the evils they refer to. The greatly decreased value of much wheat because of the prevalence of smut in many localities, is a loss that can easily be avoided, as will be seen from the letter of Mr. Haden. If the evil is not arrested, it will continue to spread every year, through the mode of threshing so prevalent in the west, where the smut most largely prevails.

The letter from Taft, Weeden & Co., of Providence, Rhode Island, will be read by all wool-growers, because it relates to a subject interesting to them. The *kind* of wool most in demand is directory of the labor of the farmer, and it will always be a leading purpose of these reports to present such facts and opinions as will aid him to look forward to the future demand as present circumstances indicate. It is a purpose, among many others, that has demanded the publication of these reports as a means of constant communication with our vast agricultural community.

With a view of rendering every possible aid to agriculture, an agricultural museum has been commenced in this department, so that specimens of every product may be collected and compared. Among these, it is my aim to have every breed of sheep exhibited, and their most useful crosses, that the farmer may be guided to the production of such kinds of wool as he may deem most profitable for him to grow. To render such an exhibition still more useful, it is desirable to have specimens of foreign wools of every kind, *just as they are imported, with their value and uses stated*, that our farmers may more clearly understand the varieties and qualities of wool necessary to manufacturers. The Commissioner desires such specimens and information from manufacturers, believing they will aid in establishing a more cordial understanding between industrial pursuits so mutually dependent.

And here I would remind all correspondents that the department receives free of postage all mail matter proper to be sent to it, not exceeding two pounds in weight.

The letter of Mr. Hoag details an experiment in what may be called transforming winter wheat into spring wheat. It is hoped that it will call forth general experiments next winter, for if his success is found to be general, the practical uses to which it can be applied will, in many seasons, render him a public benefactor.

The articles on agricultural education in England, hospital gardening, and the profits of industry will be interesting to all, the latter especially, when taken in connection with the statistics of the crops published in this report. The industry of the United States is so vast, and, when considered in its relation to the war, so wonderful in its productive results, that its bearing on the ability of

the nation to meet the debt occasioned by the war will receive the attention, not only of every American, but of all civilized nations. When the tables of the amount and value of the farm stock for the year 1864 shall be published, which it is expected they will be in the report for March, a table of the estimated annual production, for that year, of all the industrial pursuits, will be prepared to follow them.

Whilst much of the great aggregate value of the crops is to be set down to the difference between gold and currency values, and considerable to the war demand, yet, nevertheless, the productive capacities of the country are so vast that the shock of such a war, and the weight of so great a debt, cannot impede to any great extent or for any considerable time the accustomed progress of the nation.

The value of the leading crops, as estimated by this department, is, for 1862, \$706,887,495; for 1863, \$955,764,322; for 1864, \$1,440,415,435. These values do not embrace the crops of Kentucky, which, for want of sufficient returns in 1863, could not be estimated, but for 1864 will be found in the general tables, but could not be embraced in the *comparative* statement just made. The advance in value during these three years is 103 per centum, and the chief causes of this great increase are shown to be from the war and the condition of the currency. The advance by the war demand is 30 per centum; by the currency value, 73 per centum.

For the universal approbation accorded to the reports of this department I return my acknowledgments. A public journal excepts to the policy of encouraging the growth of tobacco and hops, for the reason that their use may be regarded as immoral—the one a useless luxury, and the other made so by its use in brewing malt liquors.

It is not the province of this department to discuss *moral* questions. It would involve a discussion and action that would be without limit, for consistency would require a condemnation of *fine*-woolled sheep, because fine clothes are a luxury, and not an absolute want; and of the raising of the silk-worm, for the same reason. It would force the department to ask from Congress a prohibitory tax on all sales of corn and other grains to distillers, and of hops and barley to brewers; to demand like duties on foreign liquors; to tax heavily all luxuries of whatever character. A moment's reflection must convince all that this department must take a *commercial* view of all agricultural products, as affording profit or loss in their production. The most virulent poisons are made and grown by nature for useful purposes, but ignorant or reckless application may make them the instruments of death. To this misapplication must be imputed the moral guilt, not to nature for producing them. Hops and tobacco, ardent spirits and poisons, flounces and silks, have each their proper use, and until this department advocates an immoral use of them it cannot justly be subject to censure. To the minister and the moralist must be left the consideration of moral questions, and to Cæsar must be rendered the things that belong to Cæsar.

ISAAC NEWTON, *Commissioner*.

THE SMUT, OR BUNT.

In many sections of the west the last wheat crop was much injured by the smut. For the purpose of separating it from the wheat, smut machines have been invented, and millers have used these with more or less success; but still the market value of smutted wheat is lessened, as well as a loss in the amount of the crop sustained by its presence. It is, therefore, much to be desired that the evil should be eradicated.

If farmers could be induced to grow their seed-wheat, as suggested in the article on the production of seeds in the bi-monthly report for November and December, 1864, the smut could be easily avoided; but we must not wholly rely upon what should be done, in a certain particular, as foregoing the necessity of other suggestions to effect a similar result. We therefore invite attention to the character of this disease, that a knowledge of it may lead to a more general guarding against it, and in compliance with the desire of several correspondents.

There are many varieties of smut, for it affects most of the grasses and grain crops, but none injuriously, except the wheat plant. When the crop is matured, it is found, sometimes, that even a third of the heads do not contain wheat grains; but where these should be, the chaff covering of the grain is found to be filled with a very minute dust, nearly black, very fetid, of unpleasant odor, and greasy. In the United States this disease is called *smut*; in England, *bunt*. The microscope reveals the fact that this dust is composed of grains, to which the name *spores* has been given—a common term to designate all seeds that are produced by *flowerless* plants. A square surface inch would contain five or six millions of these seeds, each of which can reproduce its kind, but to what extent, and under what conditions, is imperfectly known. It is evident, however, that the conditions are such that but few of these seeds are successful in reproduction, for otherwise the wheat crops would be destroyed by this disease. It is a parasitic fungus growth—parasitic, because it is sustained by the sap of the wheat plant, and not by its own; and fungus, because it is a soft and morbid excrecent growth, like the mushroom.

Much difficulty has been found in making these smut-seeds grow by artificial means, and hence the reason why the true character of the disease is so imperfectly understood. It differs from all like diseases in this—they, like the rust, live by directly drawing their nutriment from the sap of the plant they infest, never mingling with it; but the smut seems to change the nature of the sap of the wheat plant, so that, in maturing the grains, smut, and not wheat, is the product. Before the wheat heads are visible it is found to have the possession of them, and the sap of the plant is of a darker color than that of a healthy plant.

But the success in germinating the seeds of the smut has been more marked recently, and the results of the experiments indicate several stages of growth, but whether all are essential to the ultimate production of the seeds as found in

the wheat head is not determined. When some smut-seeds are placed in a drop of water on a piece of glass, a kind of stem shoots from them, upon which are produced small clusters of elongated, thread-like spores. These become united by short, transverse shoots, and when thus united, these thread-like spores produce other spores, differing in appearance, being thicker and shorter than these threads. The latter produce another kind of spores. "There are still," says a writer, "many points in the history of the growth and development through successive generations of the 'bunt' spores; but enough is known, on the one hand, to show that this is a true vegetative parasite, and not merely a diseased condition of the tissues of the wheat plant; and on the other, that it is perfectly distinct from all the phases of the other and similar parasitic fungi which affect the wheat crop."

This statement of the various forms and stages of the growth of smut exhibits a reproduction as singular as that of the aphid, or louse, noticed in the article on the hop plant. But it will be seen that abundant moisture is a condition of its growth, and the want of it is, no doubt, a leading cause why these almost infinite millions of seeds of the smut fail to reproduce themselves, and thus the wheat crop is saved from entire destruction.

Are these various stages of the growth and of the production of spores necessary to the formation of the seeds or spores, as found in the head of the wheat? Will the latter only germinate after winter has intervened? Are the perfect or last formed spores produced by a growth within or without the wheat plant? These questions cannot be answered; but the fact that the sap of the infected wheat plant is much darker than that of the healthy plant, indicates an inward growth, so changing the sap that it produces, through the ovary or germinating part of the wheat, the smut-seed instead of the wheat grain. Has each grain a circulation of sap separate from all others, so that on the same head there are grown wheat and smut?

If the growth of the spores of smut take place *within* the wheat plant, how do the parent spores obtain an entrance into it? It is supposed that the smut-seeds are too large to be taken into the root. Do the second or third forms of these spores obtain an entrance? If so, how? Do they find their way through the outer covering of the plant, as the husk of the seed, and, living on its sap, perfect their own growth within the covering of the grain? Does their presence there cause a discoloration of the sap?

These questions cannot yet be answered; but the only practical object effected by the numerous investigations made in England, France, and Germany, is in the certainty that the smut spores are seeds having a vitality, through which the smut perpetuates itself, and that, by destroying this vitality, the wheat plant can be protected from the smut.

This can best be done by soaking the wheat-seed in a solution of bluestone, or oil of vitriol, which is sulphate of copper. The effectiveness of this preventive will be seen by the annexed letter from Mr. Haden, near Lexington, Kentucky. As to his suggestion of the cause of smut—that it is an injury from an insect depositing its eggs in the grain of wheat, which hatches the worm described by

him—this cannot be, because the worm must live upon the substance of the grain, like the weevil, and the grain could be destroyed only to the extent of the part consumed by it; its entire nature, from starch to fetid, greasy smut, could not be so changed by this worm, nor could it be resolved into smut spores, capable of vegetating and reproducing itself. It only shows that there is a worm whose natural food is the smut spores, and the egg of the fly is deposited among them, that it may there hatch, where the worm can obtain its food. It is but an instance of an insect enemy against a vegetable parasitic enemy of the wheat. But the bluestone is a much more efficient one, for we have tested it in the same way that Mr. Haden did, and it is in common use in the west.

FAYETTE COUNTY, KENTUCKY,
Near Lexington, December 8, 1864.

DEAR SIR: As you propose, in the next number of the bi-monthly report, to say something as to the best mode of "avoiding smut, and other deteriorating matters of our wheats," I have thought a few lines, giving my experience on the subject, might not be uninteresting, and perhaps furnish some additional information on a subject of vital importance to the wheat-growers of our country. To prevent smut, I simply soak my seed-wheat in a strong solution of bluestone, using ten pounds of the bluestone to one hundred bushels of wheat. It has proved infallible as a preventive.

Some four years since one of my neighbors harvested sixty acres of wheat, and I think I am safe in saying that one-fifth was smut. He sowed the following fall his entire crop from his smut wheat, after soaking it well in bluestone, and raised from it as fine and as pure wheat as I ever saw harvested. At the commencement of his seeding I prevailed on him to sow one acre in the same field without soaking it; the result of which was so much smut that he did not cut it, but let it remain for the hogs. To satisfy myself thoroughly, I concluded to sow three acres of the same wheat without soaking, and it produced so much smut that I did not harvest it. Since then we have always used the bluestone, and always with the most perfect success. Some of our best wheat-growers use a strong solution of salt, many of them claiming that it answers the purpose as well as the bluestone; but others who have used it have sometimes failed.

I think that I have made an important discovery as to what produces smut. I propose to state some facts, which I have never seen referred to by any writer on the subject, leaving it to time and the investigation of wheat-growers of the country to determine whether I am correct in my conclusions.

Some six years ago I was in one of my wheat fields, about twelve days before it was ready to harvest, and just as the grain began to assume a slightly yellowish appearance, I soon discovered that there was a quantity of smut. After a close examination, I discovered on many of the smut-heads a very small black and nimble insect, that always at my approach disappeared from the stalks of wheat by falling off, or sometimes by taking to wing. To my astonishment I found each grain perforated or punctured as if done by some insect, the hole or incision being perceptible to the naked eye at the distance of eight or ten feet. I cut several heads of the wheat, and exhibited them to many of my friends and farmers of the neighborhood. I was so struck with what I thought to be an important discovery that I carried them for examination to a gentleman of large experience, and who was in the habit of purchasing the wheat of my neighborhood. There happened to be present a half dozen or more of our best wheat-growers, and an examination of them revealed the fact that in many of the punctured grains of smut was found a small worm, which, in its general appearance, very closely resembled the common grub worm of our country, so

destructive some seasons to our young corn. I have continued my examinations from year to year, and always with the same results. About ten days before the grain is ready to cut, the smut-heads invariably show that they have been pierced, and a close examination always reveals the small grub-like worm. I should here state an additional fact, that the punctures or incisions in the grain always close up about the time the grain is ready to cut, so closely in many of the heads that you cannot detect with the naked eye any appearance of them, but with the aid of a glass they are plainly perceptible.

From the foregoing, I assume that the worm found in the smut-grains produces smut the following year. You sow the smut grains with the worm in them, which lies in the ground during the winter. The pleasant warm weather of spring warms it into active life, and it is changed to the insect, which is soon ready to ascend the stalks of wheat, punctures the grain, producing smut, and then disappears.

My Tappahannock is looking remarkably well ; it will prove to be one of our most valuable varieties. I would like to know the result of the variety, distributed in 1863, called French white.

I am looking with much interest for the forthcoming report from your department. The Bi-Monthly is getting to be one of the institutions of the country. I close with the hope that Congress will extend to your department all efficient help.

Very truly,

J. J. HADEN.

Hon. ISAAC NEWTON, *Commissioner of Agriculture.*

AGRICULTURAL EDUCATION IN GREAT BRITAIN.

The subject of the education of the industrial classes is now undergoing a discussion in Great Britain, as it is in this country. The cause that has awakened this interest in it is found in the fact that a general opinion prevails recognizing the necessity of extending the right of suffrage to a greater portion of these classes than now exercise it. To fit them for its proper exercise is regarded as necessary ; but how can this best be done is a question of much controversy, and one which seems to materially influence opinions on the nature of the instruction to be given.

In referring to the wonderful exercise of universal suffrage in the United States, as seen in the recent election of President, when, under most extraordinary circumstances, millions of men cast their votes, decisive of the exciting controversies originating in these circumstances with the same quietness they manifest in the most ordinary transactions of life, and as good-natured after the known result as after eating their dinners, Mr. Bright, the great reformer in the English Parliament, took occasion to restate his demanded reform for universal suffrage in Great Britain, and the means essential to that reform. He holds that the laws of *primogeniture*, which entail the real estate of the nobility upon the eldest son, should be abolished. His argument, expressed in a statistical form, will be seen in the following table, exhibiting the division of the profits of the soil between the landlord, (the noble,) the farmer or renter, and the laborer:

Estimate of the annual product of land in England and Wales in 1860, as divided between the landlord, farmers, and laborers.

Value of product of land.	\$521, 000, 500
Landlords' share.	\$214, 779, 815
Farmers or renters' share.	107, 389, 905
Laborers' share.	198, 830, 780
	<hr/> 521, 000, 500 <hr/>

The result, gradually effected by the proposed reform measure of Mr. Bright, would be to break up these large estates, and oblige the owner to superintend his farm, as is done by the American owner. The landlord's share would then become merged in the other two, which would so meliorate the condition of both that the laborer could partake of those blessings of life—society, religion, a place in the state—fitted for the duties and enjoyments of each by proper instruction. How far he is now removed from these may be seen in the following estimate of the expenses of a laborer, his wife and five children, and their earnings:

Articles.	Cost.
Food	\$100 00
Physic	30
Coals, candles, and soap	15 00
Clothes	30 00
Cooking utensils	1 50
Rent	20 00
Schooling and books	2 50
Total	<u>169 30</u>

The earnings of such a family—the wife and two of the children, supposed to be over ten years of age, and, therefore, required to constantly labor—are estimated at \$201 20, leaving \$31 90 as their net income, an amount that ordinary sickness would lessen.

These statistics, taken from Purdy on Rate of Wages of Agricultural Laborers in England and Wales, indicate the character of the clothing, and the statement is made that “the husband’s cloth coat for Sundays cost fifty shillings, (\$12,) but he had worn it for thirteen years, and his wife’s bonnet, costing two shillings and sixpence, (sixty cents,) lasts for one year and a half.”

It is easy to see why Mr. Bright demands an amelioration of this deplorable condition of the English agricultural laborer as a necessary condition of the recognition of his right to vote; but few, however, in England seem to partake of his lofty and wide grasp of the question involved in this reform movement, but the great majority seek the instruction of the renter only. Shall this instruction be to fit him for his occupation merely, or shall it have reference to his wants as a man? This is the question now discussed there—the same precisely as here—and there, as here, the discussion, as it progresses, grows warmer for the man.

All general education, in the language of the London Agricultural Gazette, should aim “to quicken powers of observation, to confer alert vitality and wakefulness, to create habitual thoughtfulness, to strengthen resolution, to foster religious feelings and conviction.” And these qualities of mind belong as much to the industrial classes as to any other in society, for though covered with the sweat and dust of the harvest field, and begrimed with the smoke and soot of the forge and workshop, yet is the individual a *man*—a man, too, absolutely essential to free governments. Who, for a moment, can suppose that this rebellion could have been forced upon the country by the vaulting ambition of a class *not industrial*, if the labor of the south, like that of the east and the west, had had its powers of observation quickened by instruction, and habitually and actively thoughtful of its own temporal interest and religious convictions? But the inevitable tendency of slavery is to deprive the industrial classes of such instruction by placing labor in a lower caste, and therefore has that institution been justly regarded as inimical to free government.

Justice to the *man*, then, demands in England, as well as here, such an education as alluded to in the following extract from the London Agricultural

Gazette. Among the writers in that country is Mr. T. Dyke Ackland, who has recently issued a pamphlet, containing letters addressed to the president of the Royal Agricultural Society of England, on the subject of the kind of education proper to the agriculturist. This pamphlet we have not yet received, but the editor of the Gazette, in noticing it, thus comments on its general character :

“ It seems to us that agricultural education and the education of agriculturists are two altogether different things. The former relates to the profession, the latter to the whole human nature of the individual. It is the object of the latter to place the body, intellect, and soul of man in cordial and intelligent relationship to the whole world of moral, spiritual, and material truth ; it is the object of the former to teach only such applications of the truths thus conveyed as will tell upon the relationship of farmers to each other, to their landlords, their laborers, and their land.

“ Agricultural education, in Mr. Ackland's pamphlet, means physics, chemistry, physiology, meteorology, the laws of heat, geology, botany, animal pathology, political economy, &c., &c.—a medley of all the sciences. It is to quicken powers of observation, to confer alert vitality and wakefulness, to create habitual thoughtfulness, to strengthen resolution, to foster religious feelings and conviction. In the words of his correspondent, whom he quotes, it seems as if he would rather forget that his pupils are to be farmers, remembering only that they are to be men. And a very great service indeed he will have rendered if his pages being generally read by agriculturists, they shall be induced by them to seek such an education for their sons as shall implant these, which are the essential elements of ultimate character, the firm foundation of ultimate position, whatever occupation or profession they may afterwards adopt as their source of maintenance and livelihood.

“ Nor do we say that there is not much in these pages relating more directly to the merely professional aspect of a good agricultural education. Although the pamphlet might be as properly addressed, let us say, to the medical as to the agricultural profession, yet there is much in it of assertion, argument and advice, from which the future farmer especially may benefit. We do not purpose to-day to offer here any analysis of its pages, but content ourselves with a cordial recommendation of them to those alone of the agricultural world to whom, as we believe, they have any business to be addressed—the young farmers and agricultural students of the country.”

THE KIND OF WOOL MOST IN DEMAND.

To give direction to the agricultural industry of the country, by laying before it such facts as will serve to guide the farmer, is a duty of this department. In the report for January, we referred to the fact that Canadian wool under the miscalled reciprocity treaty is admitted free of duty, and that it is combing wool, produced by the Cotswold and Leicester sheep. The necessities of the country caused by the want of cotton have occasioned a greater demand for the cheap wools than for other kinds, and the urgencies of the war have increased the demand for combing wools. These demands must continue some time yet; and as they abate, the fact that Canadian wool will not be admitted as now, will serve to keep up the demand for home-grown combing wools. The next report from this department will exhibit a great reduction in meat-producing stock, serving, by its reduction, to keep up the prices of fresh and salted meats. This fact will increase the demand for mutton, and as the Cotswold

and Leicester are excellent mutton breeds, they cannot but be a valuable stock to the farmer. This increased demand will be seen from our table of the receipts of live stock at New York, published in the last report—the number received there in 1864, showing an increase of 54 per cent. over that of 1863.

The following letter cannot but be instructive; and what it says in regard to Saxony wool will command attention. In past years, when the country was overstocked with British broadcloths, there was but a limited demand for this fine wool. Its price was 60 cents, when the finer Spanish merino sold for 55 cents. A Saxon sheep, at the best averages, did not yield more than $3\frac{1}{2}$ pounds per head, whilst the Spanish produced 6 and 7 pounds. It is true, a greater number of the Saxony could be raised per acre than of the Spanish, but still the Spanish was most profitable. Hence their increase and the decrease of the Saxony. But, in future, fineness will determine the market value more than in past years, because that quality will be used here more extensively; foreign broadcloths will not so press down the sales of the fine domestic cloths as to force them from our own markets, as in past years, under the free-trade policy.

With these encouraging prospects before the American wool-grower, he cannot fail to find profit in a still further increase of his flocks.

PROVIDENCE, RHODE ISLAND,
February 13, 1865.

DEAR SIR: We return herewith your circular of December 20, 1864, with our replies to your interrogatories, and we will add a word further.

The increase in the production of wool in this country is imperatively demanded by the manufacturing interest; the increase of machinery for the manufacture of woollen goods having been so rapid in the past five years that twice the amount of wool is now consumed by it than in 1860. The increase of wool called for will apply to all grades, as none of them are fully supplied by the domestic growth. The two extremes may be regarded as most sought for at this time: the one, the fine Saxony; the other, the long combing wools.

The introduction of the fine long-wooled Merinoes has driven out and taken the place of the fine Saxony; the latter in this country being much less now than formerly, for the reason that the heavier fleeces are more profitable to the farmer. We think the Saxony wool cannot be materially increased until we approach the point of producing nearly the amount of wool consumed by the country.

The Leicestershire or combing wool is grown in the United States but to a limited extent, the worsted machinery now in operation here being supplied with this description of wool from Canada, the entire clip of which is barely sufficient to supply the machinery now in operation. This branch of the woollen manufacture is being largely increased by new mills, and by the enlargement of those already established. American wools may now be quoted at about \$1 per pound for the average, whilst the coarse Canada wool, if running largely to combing, will command from \$1 25 to \$1 30 per pound, and have once sold this season for \$1 45. With a present consumption equal to the entire clip of Canada, and but a small quantity now grown in the United States, we think this kind of wool offers more inducements to the wool-grower than any other quality. Upon the repeal of the reciprocity treaty with Canada, this wool must pay a duty of 10 cents per pound, and 10 per centum at least, and to import it from England at this time it will cost 80 cents per pound in gold, or \$1 60 in currency.

Fine Saxony wool is in very small supply in the markets, and it is only

grown in western Pennsylvania, West Virginia, and in the southeastern part of Ohio. The manufacturers working this grade of wool are obliged to use fine foreign wool as a substitute for it, costing now in the grease about half the price of washed domestic—the domestic shrinking about 40 per cent., and the foreign about 65 per cent., in scouring.

Hoping that the foregoing may be of some value, we are truly yours,
TAPT, WEEDEN & CO.

Hon. ISAAC NEWTON,
Commissioner of Department of Agriculture.

HOSPITAL GARDENING.

There is no one of our readers but will be pleased with the following communication from the gardener in charge of the hospital garden at Chattanooga. And many a heart will be touched by it, for it exhibits a trait of our soldiers so purely American in its love of home, and of the flowers of home, significant of the moral beauties clustering ever around his heart, that the mother and the sister, receiving the flower-seeds he sends home, will with delight read this account of the place where they were grown.

HEADQUARTERS HOSPITAL GARDEN, *Chattanooga, Tennessee, December 29, 1864.*

DEAR SIR: I presume you have heard of our garden here for the growth of vegetables for the sick and wounded of the United States army. I have taken the liberty of sending you our fiscal report, with a brief account of our proceedings, believing they will be interesting to you and the community.

The grounds comprised in the garden are cultivated by the permission of General Thomas. They embrace one hundred and fifty acres, beautifully situated on the bank of the Tennessee river, about one mile from this city. In addition to this land we have forty acres of grape vines, planted six feet square in the Catawba variety, and trained to stakes. These were planted and owned by a rebel of the name of Boyce, who went to the south upon the arrival of the Union army.

The garden and vineyard are worked by convalescent soldiers, and with horses unfit for military duty, which we received from the government. With a little exercise, and a variety of vegetable food, these men are soon able to return to their regiments, and others are received from the hospitals by order of the medical director. The enclosed list will show the variety and quantity of vegetables grown.

Gardening operations commenced in February, 1864, and teams run daily from April to the close of the season, carrying fresh vegetables to the various hospitals and headquarters, camps, &c. Many thousands of soldiers have partaken of the rich variety of our productions through the past season. By permission of General Thomas these grounds, with an addition of thirty-five acres upon Lookout mountain, are to be used next season for the same purposes, when we hope to commence earlier under more favorable circumstances, as buildings have been erected for the men, horses, vegetables, seeds, roots, implements, &c. All these have been built by our own men, when they could not be used to advantage in the garden.

Near the entrance of the grounds is an Indian mound of an oval shape, forty by eighty-four feet on the top, and about twenty feet high. Upon this mound

are the headquarters of the garden, from which two-thirds of the garden are visible, the city of Chattanooga, Raccoon mountain, Walden's and Mission ridges, and overlooking all these that monster of mountains, Lookout. The view from the top of the mound is magnificent and the admiration of all visitors, who are very numerous.

After producing a large crop of radishes, lettuce, and mustard, the surface of the mound was beautified through the season, with one hundred and eighty-eight varieties of flowers. These have awakened most pleasant remembrances of the loved ones at home in the hearts of the sick and wounded soldiers, and have been a delight to all others who have seen them. From these floral beauties seeds have been secured, of which 5,775 papers have been put up, and half of them to this time have been given to the soldiers to send to their homes, that they may find the garden and yard beautified when they return, and that they may have so pleasant a remembrance of the United States sanitary garden when the sword shall have been laid aside, and all, once more, united in peace.

In excavating a cellar for our sweet potato sets and other roots, many interesting curiosities were discovered, among which are skulls in good state of preservation, supposed to be of the race of mound builders that existed hundreds or thousands of years since. More than one hundred feet of tunnelling have been made in the mound, and this work will be continued as opportunity offers. Our works are visited with much interest by the community.

With respect, yours &c.,

THOMAS WILLS,

Gardener in charge.

COMMISSIONER OF AGRICULTURE.

The number, variety and value of vegetables issued from this garden are as follows:

	Bushels.		Dozens.
Beets	1,563	Green corn.....	8,963 $\frac{1}{2}$
Mustard	1,496	Cucumbers	2,673
Lettuce.....	1,289	Okra.....	1,717
Onions.....	1,407	Peppers.....	958
Tomatoes.....	1,276 $\frac{1}{2}$	Cabbage.....	896 $\frac{3}{4}$
Irish potatoes.....	904 $\frac{3}{4}$	Summer squash.....	400 $\frac{1}{2}$
Radishes.....	715	Melons.....	139
Peas.....	442	Pumpkins.....	96
Bunch beans.....	431	Winter squash.....	26
Sweet potatoes.....	384		
Lima beans.....	148	Total dozens.....	15,949 $\frac{1}{4}$
Spinach.....	133	Total bushels.....	11,155 $\frac{1}{4}$
Miscellaneous.....	76	Seeds (papers).....	5,775
Total bushels	11,155 $\frac{1}{4}$	Estimated value.....	\$66,375 70

CALIFORNIA WINES.

The following are the imports and exports of wines at San Francisco in 1863 and 1864, taken from the Mercantile Gazette of that city:

IMPORTS.			EXPORTS.		
	1863.	1864.		1863.	1864.
Hogsheads	20	572	Pipes and casks	856	1,485
Pipes	21	31	Half-casks	92	96
Casks (60 gallons) ..	5,444	7,191	Quarter-casks ..	71	42
Half-casks	830	1,757	Barrels	151	147
Quarter-casks	1,600	2,534	Octaves	128	40
Barrels	72	595	Kegs	69	53
Octaves	432	1,188	Cases	8,994	9,481
Baskets	31,257	48,574	Baskets	2,235	2,614
Cases	48,640	65,217	Packages	23	317

The imports have evidently increased much more than the exports, and hence, even for California consumption, the home market invites to an increased wine production. The assurance which the act of Congress has given, by its increased duties on foreign wines, that the home market will be at the command of the home production, is infusing a greatly increased vigor in vine-planting in California. The fact, too, that it is a crop that will seldom be much injured by the occasional extreme droughts of the California climate, and that its habitual dryness during the summer is highly advantageous, will also give an additional stimulant to grape cultivation. The lesson taught by the recent drought, that thorough farming is the safest, and to be thorough it must be limited to small farms, will also aid this crop. With these motives to the full development of the great natural advantages that California has as a wine-producing country, we may anticipate such an advance as will make it the great wine country of the world; and as this advance progresses, to draw such attention as will increase correspondingly the demand for its wines.

The Gazette says: "As soon as it was known that Congress had passed the before-mentioned act [the tariff act of last session] new life was spread through the vine plantations, and millions of vines will this year be put out. The Buena Vista Vinecultural Society alone plants 700,000 vines, principally of foreign varieties. Every man in Sonora county increases his vineyard. As far as we can hear, that valley will plant at least one million vines, and we feel confident that California will this year plant no less than five million vines. How great an increase this is will be seen from the State Register of 1859. In 1856 there were planted in this State 1,540,134; in 1858, 4,054,548. The standing committee of the legislature of 1862 reports the probable amount of 200,000 vines added since then, admitting that little had been planted since 1858. The wine produced in 1864 throughout the State will not fall short of 4,000,000 gallons, and brandy about 200,000 gallons.

"As to the product of 1864, we remark that the quantity of grapes produced all through California last year fell short of expectation on account of excessive dryness. The quality of wine produced is, on the average, better than of many previous years. Up to the present date about 200 pipes of the new white and red wines have been shipped from the southern counties to this market, and find ready sale at 35 to 50 cents per gallon."

Every country should conform its general crops to the peculiar climate it has. Occasional and very limited ones may be grown where peculiar causes may render them profitable. Thus the grape in the western States, except in certain localities, where the general climate and soil do not exist, could never be made a general crop, because its moisture and richness induce diseases which

must make the crop unprofitable. But the California climate and soil are peculiarly adapted to the growth of the grape, whose leaf exhales but half the amount of sap that is evaporated by an equal surface of the apple leaf. This physiological fact points to the dry trade-wind climate as that intended for the grape; and hence, as a general crop, California may confide in the fitness of the grape for its climate; and on that fitness it may as confidently rely for ultimate success in making for its wines a commercial demand equal to its production.

THE PROFITS OF INDUSTRY.

The following table of statistics, exhibiting the mercantile, manufacturing, and trading wealth of the States embraced in it, we find published in Hunt's Merchants' Magazine, and is prepared by R. G. Dunn & Co., at the mercantile agency office, New York. This table is a most interesting one, especially at this time, because it furnishes so much statistical matter, through which may be read the influence of the war on the manufacturing and commercial progress of the country. It is a matter of regret that the table did not separate from each other the business houses and wealth of each of the pursuits named—the mercantile, manufacturing, and trading. The statistics pertaining to the business of the carrying trade on our great lines of railway and lake navigation are given by the Treasury Department, and now all that is wanted is a like estimate of the wealth and profits of the agriculturists, in order to have before us the data upon which to base estimates of the relative profits of capital and labor invested in each of the great industrial pursuits of our country. As the plan of gathering statistics of the crops, adopted by this department, is as applicable to the obtaining of those relating to the capital invested in agriculture, we will endeavor to procure the amount of this capital. Referring to the importance of the statistics they give, R. G. Dunn & Co. say:

“The deep interest we have felt in arriving at correct statistics, to submit to the judgment of our subscribers, has induced us to make the most rigid and careful research of our records, at this particular juncture, in order to present to them at a glance an estimate of the wealth of the mercantile, manufacturing, and trading interests in the loyal States. This estimate is not obtained by averaging the whole number of traders, but by a specific examination of each name or firm. It has been the work of months, both with us and our associate officers throughout the country, and the result is shown in the appended table, arranged by States and the principal cities. The States of Missouri, Kentucky, Louisiana, and Kansas having been made the theatre of war, thereby disorganizing trade, are consequently not fully represented in this estimate; and California, as it will be observed, is entirely omitted. Still, without them, the aggregate shows 168,925 business houses, representing a wealth of \$4,944,766,000, mostly invested in personal property. It is generally conceded that the average profits of trade range from twelve to fifteen per cent.; but assuming the low figures of ten per cent., we have \$494,476,000 as the accrued gain the past year on the business interests spoken of. This, in view of the unprecedented expenditure necessarily incurred, both by heavy taxation and in otherwise sustaining the government, exhibits the self-supporting character of our people, and but one element of the strength of the country, which, when added to the other immense resources not brought into our estimate, such as real estate, agricultural, mining, and other interests, should inspire the most hopeful confidence in our future growth and permanent prosperity.

Mercantile, manufacturing, and trading wealth and profits for 1864.

Connecticut.....	5, 832.....	\$145, 588, 000
Delaware.....	1, 150.....	24, 701, 000
District of Columbia.....	1, 282.....	17, 448, 000
Illinois.....	12, 215.....	207, 508, 000
Indiana.....	8, 512.....	134, 240, 000
Iowa.....	5, 052.....	38, 532, 000
Kansas*.....	438.....	3, 357, 000
Kentucky*.....	1, 528.....	39, 559, 000
Louisiana,* (New Orleans, only).....	802.....	50, 794, 000
Maine.....	4, 982.....	99, 293, 000
Maryland.....	3, 665.....	102, 359, 000
Massachusetts.....	17, 302.....	868, 815, 000
Michigan.....	5, 934.....	83, 943, 000
Missouri*.....	3, 263.....	81, 334, 000
Minnesota.....	979.....	7, 602, 000
New Hampshire.....	2, 851.....	38, 685, 000
New Jersey.....	5, 910.....	90, 250, 000
New York.....	36, 932.....	1, 677, 204, 000
Ohio.....	17, 005.....	310, 725, 000
Pennsylvania.....	22, 941.....	733, 296, 000
Rhode Island.....	2, 487.....	115, 704, 000
Vermont.....	2, 494.....	19, 989, 000
Wisconsin.....	5, 369.....	53, 775, 000
Total.....	168, 925.....	4, 944, 766, 000

WINTER WHEAT AND SPRING WHEAT.

The annexed letter to the Commissioner of Agriculture raises the question, What is the essential difference between winter and spring wheat? We now know that one must be sown in the fall, the other in the spring, for a reverse sowing would cause the spring wheat to be killed, and the winter wheat not to ripen timely its grain, and to yield but a light crop if ripened. Still the one can, by gradual changes, be turned into the other. Hence there is no radical difference between them. The difference, as we can now see it, appears to be climatic only.

Individuals have sometimes sown winter wheat so late in the season that the seed did not exhibit any surface growth until February; yet with a favorable season it has produced a good crop. Whether this, like the experiment stated in the letter, is an accidental result, or that sprouting the seed and exposure to cold so hastens the change of the elements of the seed that the growing plant derives a nutritious support so rapidly as not to require an earlier sowing, are questions about which many conjectures might be made, but the

* These States, in consequence of the disorganized state of trade caused by the rebellion are not fully represented.

safer and more proper course is to have the *facts* made out first, so that the *fact* being first clearly established, the *causes* may then be investigated, and the benefit of the knowledge of them be made available to increase the wheat crops. We would urge, therefore, our farmers to experiments like that given in the letter. If the result stated in it is found not to be accidental, but in conformity to the nature of the growth of the wheat plant, it will readily be seen to how many useful purposes it could be applied. The casualties arising, from freezing *in* and *out*, to the crop of winter wheat, are great, but these could be met by cross-drilling, in the spring, winter wheat prepared after the manner suggested in the letter. Or, in districts where spring wheat will not yield a profitable return, a portion of the crop might be left unsown until spring, and then put in with the prepared seed, and in this manner avoid the casualties of winter. But here is the letter:

MANTORVILLE, *Dodge Co., Minnesota.*

DEAR SIR: The wheat which I obtained from the Department of Agriculture, known as the bald Mediterranean, came to hand some time during the month of February, 1864. It being too late in the season to sow it, being winter wheat, and wishing to determine its value as soon as possible, the thought occurred to me that by sprouting it, and subjecting it to the action of frost for a length of time, I might possibly succeed in raising a partial crop, at least, that season. My expectations were more than realized, as the product was at the rate of forty bushels and three quarts per acre. The experiment is as follows:

I took a little more than one-half of the package, which contained about one quart, reserving the rest for a second trial the coming fall, in case of a failure in the experiment, and placing it in a dish, I poured warm water upon it until the wheat was covered a half inch in depth. In this it remained until the greater part of the water was absorbed, when it was removed from the dish and put into a small bag and placed in a hot-bed frame on top of the soil. Here it remained thirty-six hours, when it was examined and found to be sufficiently sprouted; the root sprouts being from one to one and a half inches in length, and the stem or leaf sprout from one-fourth to one-half an inch in length. I would here remark that my thermometer had been accidentally broken a short time previous to the commencement of the experiment, and that I was without the means of determining the exact number of degrees of heat or cold that was employed throughout the experiment, but each person can probably form an opinion near enough for all practical purposes. The water that was used to soak the wheat in contained about 120 degrees of heat, (Fahrenheit.) The number of degrees of heat within the hot-bed frame was about sixty. After the wheat was sprouted, as before stated, it was removed from the hotbed and placed upon and slightly covered with snow, where it remained four days, the mercury in that time, as I was informed, sinking as low as zero. It was then placed again in a hotbed frame, where it remained about twelve hours, when it was examined and found to be uninjured. It was then placed on top of the snow, where it was left ten days, the weather being warm enough to thaw in the middle of the day, most of the time, and during the last four days all of the time. While there the wheat was frequently turned in order to keep it moist throughout.

When it was sowed the sprouts seemed to be about in the same condition that they were in when first removed from the hotbed. The wheat was sown broadcast on land that had been ploughed in the month of September, previously. The soil had been covered formerly by a hazel thicket, on the edge

of the prairie, and was rich in vegetable mould. The land was ploughed about ten inches deep, and dragged three times before, and the same number of times after sowing.

I did not discover any difference in the appearance of the wheat after it came up from what it would probably have presented had it been sown in the fall, except that it did not tiller on the stool quite as much, but this I thought was attributable to the very great dryness of the season. The growth was vigorous and healthy throughout, as much so as wheat sown in the fall that had wintered well. It exhibited no signs of disease whatever, and the heads were long and well filled. The product was harvested about one week before my spring wheat that was sown three days after it. There was no other winter wheat raised in the vicinity, so that I am unable to say what the difference would have been in the time of ripening between it and the same, or any other kind of fall wheat sown in the fall. The date of sowing I have not got, but I think it was in the last week of March, or the first week in April. It was as soon as the ground would permit it.

The experiment has demonstrated, to my mind, that fall wheat can be successfully grown by sowing in the spring, and in all probability as large a crop can be raised as by fall sowing, at least in this climate, in a majority of instances, without the risk of winter-killing, though these facts were not sought after when the experiment was commenced. I regret that in sowing all the seed last September, I did not re-sow a portion of it to repeat the experiment and compare the results with that sown in the fall. That sown in the fall was looking finely when I last saw it.

Yours, very respectfully,

C. R. HOAG.

ISAAC NEWTON, *Commissioner*.

TOBACCO PRODUCTION ON THE CONNECTICUT RIVER.

The department has furnished for this spring's planting a large quantity of the Connecticut seed leaf tobacco. It is not only an excellent variety, but is very productive, and well adapted to the colder latitudes of our country. For the purpose of showing how productive it is when planted in a suitable soil and cultivated properly, we publish the following statements sent to the department by a correspondent:

"Samuel S. Smith, of Poquonock, Hartford county, Connecticut, raised last season, from two and three-fourth acres of land, 6,461 pounds of tobacco, being 2,350 pounds to the acre.

"O. H. Seymour, of the same county, raised on seven-eighths of an acre 2,323 pounds of first-class tobacco, which is at the rate of 2,613 pounds per acre.

"Thaddeus Smith, of Hadley, Massachusetts, raised twenty-four tons on twenty-two acres, being 2,181 pounds per acre."

WILL CONGRESS TAX TOBACCO LEAF?

To this question we may now give an answer in the *negative*, and we are sure that the information it conveys will be hailed with joy by the growers of tobacco. No class of men are more ready to contribute to the support of government than they, but any tax on the leaf must so evidently destroy the export of it—amounting in past years to twenty millions of dollars—that the tax itself would have resulted in an evil of so much greater magnitude to the country than benefit to the government, that the well-being of the country demanded its exemption from the proposed tax. This was shown clearly a year ago by

this department. The bills to tax it, introduced into the House of Representatives, were best condemned by themselves. But apart from their obvious import, the principles of the entire internal revenue system are now undergoing careful consideration, and we trust that they will be so changed as to keep out any tax induced more by speculative interest than the general welfare.

It may be regarded as a general rule, subject, however, to modifications by the law of supply and demand, that the consumer will have to pay the tax, with such profit on it as will reimburse the various payers of it. The further, therefore, the tax is levied from the consumer, the more onerous it will be to him. Many cases might be adduced to show that where the government has received a dollar of internal revenue, the consumer has had to pay two dollars. A system of this kind is wrongfully oppressive, because unnecessarily so, and hence, taxes on the raw material of a manufacture, or on its different processes of the manufacture, ought to be avoided if possible, and made to bear directly on the consumer. How far it may be advisable to avoid every tax on *business* and place it on the *results* of business, is a question that will, doubtless, soon receive a thorough investigation. Seeing that as the internal revenue system must be in existence for many years, its operation upon all practicable bases should be well considered. The selection of so many specified articles for taxation engenders business rivalry, and creates speculative hope and projects, as well as multiplies greatly the expenses of collection.

TABLE No. 1.

Showing the amount in bushels, &c., of each principal crop of the several States named, the yield per acre, the total acreage, the average price in each State, and the value of each crop, for 1864.

Products.	Amount of crop of 1864.	Average yield per acre.	Number of acres in each crop.	Value per bushel or pound.	Total valuation.
MAINE.					
Indian corn..... bushels..	1, 410, 017	27	52, 223	\$2 10	\$2, 961, 036
Wheat..... " ..	167, 194	10 $\frac{1}{2}$	15, 999	2 60	434, 704
Rye..... " ..	128, 612	12	10, 718	2 04 $\frac{1}{2}$	263, 012
Oats..... " ..	2, 102, 994	22	95, 591	1 01	2, 124, 024
Barley..... " ..	668, 424	18	37, 135	1 45	970, 215
Buckwheat..... " ..	350, 837	19	18, 465	1 28	449, 071
Potatoes..... " ..	7, 189, 151	143	50, 274	67	4, 816, 731
Tobacco..... pounds ..					
Hay..... tons ..	1, 085, 705	$\frac{2}{3}$	1, 240, 806	21 00	22, 799, 805
Total.....			1, 521, 211		34, 818, 598
NEW HAMPSHIRE.					
Indian corn..... bushels..	1, 334, 628	29 $\frac{1}{2}$	45, 242	2 11	2, 816, 065
Wheat..... " ..	251, 518	12 $\frac{1}{2}$	20, 121	2 68	674, 068
Rye..... " ..	109, 373	14 $\frac{1}{2}$	7, 543	2 04	223, 121
Oats..... " ..	1, 095, 891	24	45, 662	92	1, 008, 220
Barley..... " ..	96, 278	18	5, 349	1 69	162, 710
Buckwheat..... " ..	87, 447	19 $\frac{1}{5}$	4, 564	1 32	115, 430
Potatoes..... " ..	3, 842, 154	164	23, 427	60	2, 305, 292
Tobacco..... pounds ..	64, 000	985	65	25	16, 000
Hay..... tons ..	694, 161	1	694, 161	21 00	14, 577, 331
Total.....			846, 134		21, 898, 287
VERMONT.					
Indian corn..... bushels..	1, 585, 020	38 $\frac{1}{2}$	40, 851	1 96	3, 106, 639
Wheat..... " ..	497, 951	14	35, 568	2 57 $\frac{1}{2}$	1, 282, 224
Rye..... " ..	140, 798	15 $\frac{1}{2}$	9, 263	1 88	264, 700
Oats..... " ..	3, 611, 938	33	109, 452	87	3, 142, 386
Barley..... " ..	94, 102	22	4, 277	1 61	151, 504
Buckwheat..... " ..	210, 516	19 $\frac{2}{9}$	10, 954	1 04	218, 937
Potatoes..... " ..	5, 920, 810	162 $\frac{1}{2}$	36, 434	54	3, 197, 237
Tobacco..... pounds ..	59, 000				
Hay..... tons ..	850, 127	1	850, 127	17 95	15, 259, 780
Total.....			1, 096, 926		26, 623, 407
MASSACHUSETTS.					
Indian corn..... bushels..	2, 260, 324	31 $\frac{1}{2}$	72, 319	2 04	4, 651, 861
Wheat..... " ..	128, 143	16	8, 009	2 41	308, 825
Rye..... " ..	413, 957	15	27, 597	2 00	827, 914
Oats..... " ..	1, 194, 827	26 $\frac{3}{10}$	45, 430	1 04	1, 242, 620
Barley..... " ..	149, 584	20	7, 479	1 78	266, 260
Buckwheat..... " ..	110, 972	16 $\frac{1}{2}$	6, 829	1 25	138, 715
Potatoes..... " ..	3, 384, 878	132 $\frac{1}{2}$	25, 546	93	3, 147, 937
Tobacco..... pounds ..	6, 760, 000	1, 650	4, 097	25	1, 690, 000
Hay..... tons ..	760, 517	1	760, 517	29 00	22, 054, 993
Total.....			957, 823		34, 329, 125

Table showing the amount in bushels, &c.—Continued.

Products.	Amount of crop of 1864.	Average yield per acre.	Number of acres in each crop.	Value per bushel or pound.	Total valuation.
RHODE ISLAND.					
Indian corn.....bushels..	474,208	30 $\frac{1}{4}$	15,676	\$2 09	\$991,095
Wheat....." ..	1,413	15	94	2 50	3,532
Rye....." ..	37,302	17	2,194	2 00	74,604
Oats....." ..	182,873	33	5,542	98 $\frac{3}{4}$	180,587
Barley....." ..	41,506	25	1,660	1 64	68,070
Buckwheat....." ..	3,097				
Potatoes....." ..	525,727	127 $\frac{1}{2}$	4,123	97 $\frac{1}{2}$	512,584
Tobacco.....pounds..	1,848	1,350	1 $\frac{37}{100}$	30	545
Hay.....tons.....	62,044	1	62,044	31 50	1,954,386
Total.....			91,334 $\frac{37}{100}$		3,785,403
CONNECTICUT.					
Indian corn.....bushels..	2,059,835	31	66,446	1 81	3,728,301
Wheat....." ..	71,881	16 $\frac{1}{2}$	4,356	2 37 $\frac{1}{2}$	170,717
Rye....." ..	721,889	15	48,126	1 91	1,378,808
Oats....." ..	2,011,334	30	67,044	1 00	2,011,334
Barley....." ..	18,732	23 $\frac{1}{2}$	797	1 81	33,906
Buckwheat....." ..	387,477	16 $\frac{3}{8}$	23,342	1 35	523,094
Potatoes....." ..	1,833,148	131	13,993	83	1,521,513
Tobacco.....pounds..	9,900,218	1,450	6,828	25	2,475,054
Hay.....tons.....	449,956	1 $\frac{1}{5}$	374,963	27 00	12,148,812
Total.....			605,895		23,991,538
NEW YORK.					
Indian corn.....bushels..	22,628,862	29 $\frac{1}{3}$	771,526	1 68	38,016,488
Wheat....." ..	10,918,615	13	839,893	2 34 $\frac{3}{8}$	25,622,350
Rye....." ..	5,205,759	14 $\frac{1}{2}$	359,018	1 70 $\frac{1}{2}$	8,875,819
Oats....." ..	35,724,746	23	1,553,250	94	33,581,261
Barley....." ..	3,710,911	18 $\frac{3}{4}$	197,915	1 74 $\frac{1}{3}$	6,469,355
Buckwheat....." ..	5,677,490	18 $\frac{1}{5}$	313,488	1 13 $\frac{3}{8}$	6,453,414
Potatoes....." ..	29,753,312	115 $\frac{1}{3}$	257,984	66	19,637,186
Tobacco.....pounds..	12,912,662	856	15,085	24 $\frac{7}{8}$	3,212,025
Hay.....tons.....	3,921,264	1 $\frac{2}{5}$	3,547,810	23 05	90,385,135
Total.....			7,855,969		232,253,038
NEW JERSEY.					
Indian corn.....bushels..	8,464,262	31 $\frac{3}{8}$	267,349	1 70 $\frac{1}{2}$	14,401,337
Wheat....." ..	1,582,113	15	105,474	2 33	3,686,323
Rye....." ..	1,424,523	13 $\frac{1}{2}$	105,520	1 69 $\frac{1}{2}$	2,414,566
Oats....." ..	5,735,647	32 $\frac{1}{2}$	176,481	91 $\frac{1}{2}$	5,227,640
Barley....." ..	29,098	20	1,454	1 78 $\frac{1}{2}$	51,940
Buckwheat....." ..	921,256	17	54,191	1 44	1,326,609
Potatoes....." ..	3,989,179	86 $\frac{3}{8}$	46,033	1 08	4,308,313
Tobacco.....pounds..	179,755			25	44,939
Hay.....tons.....	436,496	1 $\frac{1}{2}$	277,770	26 71 $\frac{1}{2}$	11,660,991
Total.....			1,034,272		43,122,658

Table showing the amount in bushels, &c.—Continued.

Products.	Amount of crop of 1864.	Average yield per acre.	Number of acres in each crop.	Value per bushel or pound.	Total valuation.
PENNSYLVANIA.					
Indian corn bushels..	28,381,685	29 $\frac{1}{2}$	962,091	\$1 54 $\frac{3}{4}$	\$43,920,658
Wheat..... " ..	12,523,404	12	1,043,617	2 40	30,056,170.
Rye..... " ..	6,843,427	14 $\frac{1}{4}$	480,240	1 70 $\frac{1}{6}$	11,645,232
Oats..... " ..	37,657,329	29 $\frac{1}{4}$	1,287,430	87	32,761,876
Barley..... " ..	630,491	18	35,027	1 71	1,078,140
Buckwheat..... " ..	7,577,955	18 $\frac{3}{4}$	404,157	1 16 $\frac{3}{4}$	8,847,262
Potatoes..... " ..	12,661,424	110 $\frac{1}{2}$	114,759	89	11,268,667
Tobacco..... pounds ..	6,124,551	1,068 $\frac{1}{2}$	5,732	18 $\frac{1}{2}$	1,133,042
Hay..... tons.....	1,796,336	1 $\frac{3}{10}$	1,381,797	24 55	44,100,049
Total.....	-----	-----	5,714,850	-----	184,811,096
MARYLAND.					
Indian corn bushels..	10,509,243	21 $\frac{1}{2}$	488,802	1 62	17,024,974
Wheat..... " ..	6,487,946	11 $\frac{1}{2}$	564,178	2 60	16,868,660
Rye..... " ..	529,744	14	37,838	1 64	868,780
Oats..... " ..	5,429,894	22	246,813	87	4,724,008
Barley..... " ..	26,591	26 $\frac{2}{3}$	997	1 78 $\frac{2}{3}$	47,509
Buckwheat..... " ..	189,285	19 $\frac{3}{5}$	9,657	1 58	299,070
Potatoes..... " ..	1,061,994	55	19,309	1 20	1,274,393
Tobacco..... pounds ..	33,292,968	750	44,391	13 $\frac{2}{3}$	4,550,039
Hay..... tons.....	167,909	1 $\frac{1}{2}$	125,931	27 00	4,533,543
Total.....	-----	-----	1,537,916	-----	50,190,976
DELAWARE.					
Indian corn bushels..	3,892,337	20 $\frac{1}{2}$	191,458	1 55	6,033,122
Wheat..... " ..	1,054,954	12	87,912	2 53	2,668,834
Rye..... " ..	41,153	15 $\frac{2}{3}$	2,627	1 56 $\frac{2}{3}$	64,473
Oats..... " ..	1,184,437	24	49,351	80	947,550
Barley..... " ..	4,595	27	170	1 87 $\frac{1}{2}$	8,616
Buckwheat..... " ..	15,641	20	782	1 00	15,641
Potatoes..... " ..	327,540	125	2,620	1 32	432,353
Tobacco..... pounds ..	14,057	-----	-----	-----	-----
Hay..... tons.....	33,111	1 $\frac{1}{2}$	22,074	30 00	993,330
Total.....	-----	-----	311,994	-----	11,163,919
KENTUCKY.					
Indian corn bushels..	42,828,706	28 $\frac{1}{2}$	1,502,761	96 $\frac{3}{4}$	41,399,749
Wheat..... " ..	3,882,275	10 $\frac{1}{2}$	378,758	1 96 $\frac{1}{2}$	7,628,670
Rye..... " ..	554,014	13 $\frac{2}{3}$	41,344	1 35 $\frac{1}{2}$	750,689
Oats..... " ..	4,346,326	24 $\frac{1}{2}$	179,229	79 $\frac{1}{4}$	3,444,463
Barley..... " ..	256,713	23 $\frac{1}{4}$	11,003	1 59 $\frac{1}{4}$	408,602
Buckwheat..... " ..	14,187	20 $\frac{1}{2}$	698	1 37 $\frac{1}{2}$	19,507
Potatoes..... " ..	1,255,921	81 $\frac{1}{2}$	15,474	1 09 $\frac{3}{4}$	1,377,327
Tobacco..... pounds ..	56,956,469	770	73,969 $\frac{1}{2}$	12	6,834,776
Hay..... tons.....	112,325	1 $\frac{1}{4}$	84,243	20 16	2,264,472
Total.....	-----	-----	2,287,479	-----	64,128,255

Table showing the amount in bushels, &c.—Continued.

Products.	Amount of crop. of 1864.	Average yield per acre.	Number of acres in each crop.	Value per bushel or pound.	Total valuation.
OHIO.					
Indian corn bushels..	68,202,641	31 $\frac{1}{8}$	2,176,911	\$0 96	\$65,474,535
Wheat..... " ..	20,407,503	10 $\frac{1}{4}$	1,990,976	1 93	39,386,481
Rye..... " ..	704,974	12 $\frac{1}{4}$	57,548	1 32 $\frac{1}{2}$	931,741
Oats..... " ..	14,428,833	29	497,546	72 $\frac{3}{4}$	10,417,617
Barley..... " ..	1,585,630	23 $\frac{3}{8}$	67,016	1 56	2,473,583
Buckwheat..... " ..	1,300,141	17	76,479	1 10	1,430,155
Potatoes..... " ..	4,615,881	96	48,082	91 $\frac{1}{4}$	4,211,991
Tobacco..... pounds ..	29,017,931	870 $\frac{1}{2}$	33,335	13 $\frac{1}{2}$	3,917,421
Hay..... tons.....	1,415,096	1 $\frac{1}{8}$	1,061,322	19 38	27,424,560
Total.....			6,009,215		145,668,084
MICHIGAN.					
Indian corn bushels..	11,088,801	24 $\frac{1}{8}$	455,766	1 26	13,971,889
Wheat..... " ..	13,966,153	12	1,163,846	1 96	27,373,660
Rye..... " ..	434,894	12 $\frac{1}{4}$	35,419	1 36 $\frac{1}{2}$	592,905
Oats..... " ..	4,810,136	26	185,005	75 $\frac{3}{4}$	3,643,678
Barley..... " ..	338,388	19 $\frac{1}{8}$	17,624	1 56	527,885
Buckwheat..... " ..	823,453	12	68,620	1 18 $\frac{1}{2}$	975,792
Potatoes..... " ..	3,422,078	79	43,317	81 $\frac{1}{2}$	2,788,994
Tobacco..... pounds ..	248,473	1,000	248	20	49,695
Hay..... tons.....	847,737	1 $\frac{1}{9}$	762,963	19 33	16,386,756
Total.....			2,732,808		66,311,254
INDIANA.					
Indian corn bushels..	74,284,363	29	2,561,529	95 $\frac{1}{2}$	70,941,567
Wheat..... " ..	22,321,376	14	1,594,384	1 75	39,062,308
Rye..... " ..	397,632	14	28,402	1 31	520,898
Oats..... " ..	6,084,793	26	234,030	73 $\frac{3}{8}$	4,478,408
Barley..... " ..	339,198	24	14,133	1 56	529,149
Buckwheat..... " ..	272,171	18 $\frac{1}{2}$	14,712	1 24 $\frac{1}{8}$	338,399
Potatoes..... " ..	2,904,847	80	36,310	99 $\frac{1}{2}$	2,890,323
Tobacco..... pounds ..	8,767,065	856	10,241	14	1,227,389
Hay..... tons.....	962,805	1 $\frac{1}{2}$	641,870	17 81	17,147,557
Total.....			5,135,611		137,135,998
ILLINOIS.					
Indian corn bushels..	138,356,135	33	4,192,610	75	103,767,101
Wheat..... " ..	33,371,173	14 $\frac{1}{2}$	2,328,763	1 55	51,725,318
Rye..... " ..	850,071	15	56,671	1 01 $\frac{1}{2}$	862,822
Oats..... " ..	24,273,751	31 $\frac{1}{6}$	779,003	61	14,806,988
Barley..... " ..	1,144,790	22 $\frac{3}{8}$	50,520	1 37	1,568,362
Buckwheat..... " ..	280,370	17	16,492	1 10	308,407
Potatoes..... " ..	4,511,083	81 $\frac{1}{2}$	55,521	1 15	5,187,745
Tobacco..... pounds ..	18,867,722	907	20,802	16 $\frac{1}{2}$	3,045,789
Hay..... tons.....	2,166,725	1 $\frac{1}{2}$	1,444,483	15 33	33,215,894
Total.....			8,944,865		214,488,426

Table showing the amount in bushels, &c.—Cont nued.

Products.	Amount of crop of 1864.	Average yield per acre.	Number of acres in each crop.	Value per bushel or pound.	Total valuation.
MISSOURI.					
Indian corn.....bushels..	36,635,011	26 $\frac{1}{2}$	1,366,978	\$0 97	\$35,535,961
Wheat....." ..	3,281,514	14 $\frac{1}{2}$	231,092	1 75	5,742,648
Rye....." ..	237,542	15 $\frac{1}{2}$	15,168	1 11 $\frac{1}{2}$	264,463
Oats....." ..	2,128,522	25 $\frac{1}{2}$	84,297	71 $\frac{1}{2}$	1,521,893
Barley....." ..	162,809	23	7,078	1 47 $\frac{1}{2}$	240,415
Buckwheat....." ..	72,461	15 $\frac{1}{2}$	4,615	1 07	77,533
Potatoes....." ..	776,630	39	19,913	1 75 $\frac{1}{2}$	1,361,691
Tobacco.....pounds ..	13,697,063	562	24,372	13 $\frac{1}{2}$	1,009,257
Hay.....tons.....	399,599	1 $\frac{1}{2}$	279,719	18 12 $\frac{1}{2}$	7,242,731
Total.....			2,033,232		52,996,592
WISCONSIN.					
Indian corn.....bushels..	10,087,053	31	325,388	94	9,481,829
Wheat....." ..	14,168,317	9 $\frac{1}{2}$	1,491,401	1 48 $\frac{1}{2}$	21,016,337
Rye....." ..	810,343	12 $\frac{1}{2}$	66,150	1 09 $\frac{1}{2}$	884,624
Oats....." ..	12,043,538	27 $\frac{1}{2}$	437,945	60	7,226,123
Barley....." ..	674,919	13 $\frac{1}{2}$	50,937	1 49	1,005,629
Buckwheat....." ..	73,258	16 $\frac{1}{2}$	4,440	88 $\frac{1}{2}$	65,016
Potatoes....." ..	3,582,068	118	30,356	55	1,970,137
Tobacco.....pounds ..	148,083	980	151	15	22,212
Hay.....tons.....	789,765	1 $\frac{1}{2}$	691,044 $\frac{1}{2}$	13 00	10,266,945
Total.....			3,097,812 $\frac{1}{2}$		51,938,852
IOWA.					
Indian corn.....bushels..	55,261,240	36 $\frac{1}{2}$	1,507,124	67 $\frac{1}{2}$	37,370,414
Wheat....." ..	12,649,807	12 $\frac{1}{2}$	1,032,637	1 34 $\frac{1}{2}$	17,013,990
Rye....." ..	119,333	15	7,955	92	109,786
Oats....." ..	9,313,369	32	291,042	53	4,936,086
Barley....." ..	584,446	21	27,830	1 20 $\frac{1}{2}$	702,796
Buckwheat....." ..	276,524	17 $\frac{1}{2}$	15,800	1 14	315,237
Potatoes....." ..	2,520,481	76	33,164	1 11 $\frac{1}{2}$	2,806,136
Tobacco.....pounds ..	390,522	957	408	25	97,630
Hay.....tons.....	814,764	1 $\frac{1}{2}$	501,394	9 51	7,748,406
Total.....			3,417,354		71,100,481
MINNESOTA.					
Indian corn.....bushels..	4,647,329	33	140,828	94	4,368,485
Wheat....." ..	2,634,975	13 $\frac{1}{2}$	197,672	1 13 $\frac{1}{2}$	2,995,088
Rye....." ..	161,974	14 $\frac{1}{2}$	11,303	92	149,016
Oats....." ..	2,259,232	28 $\frac{1}{2}$	78,582	73 $\frac{1}{2}$	1,660,536
Barley....." ..	148,592	20	1,429	1 09 $\frac{1}{2}$	163,212
Buckwheat....." ..	31,714	17 $\frac{1}{2}$	1,796	1 23 $\frac{1}{2}$	39,114
Potatoes....." ..	2,163,141	112	19,313	67 $\frac{1}{2}$	1,452,395
Tobacco.....pounds ..	34,659	800	43 $\frac{1}{2}$	20	6,932
Hay.....tons.....	249,289	1 $\frac{1}{2}$	166,192	9 36	2,333,345
Total.....			617,158		13,168,123

Table showing the amount in bushels, &c.—Continued.

Products.	Amount of crop of 1864.	Average yield per acre.	Number of acres in each crop.	Value per bushel or pound.	Total valuation.
KANSAS.					
Indian corn bushels..	4, 673, 081	25	186, 923	\$1 37	\$6, 402, 121
Wheat..... " ..	201, 598	15	13, 439	2 01	405, 212
Rye..... " ..	4, 061	17	239	1 25	5, 076
Oats..... " ..	146, 500	29	5, 051	96 $\frac{1}{2}$	141, 372
Barley..... " ..	5, 901	23	256	1 27	7, 494
Buckwheat..... " ..	24, 288	15	1, 619	1 25	30, 360
Potatoes..... " ..	184, 480	43	4, 290	2 68	494, 406
Tobacco..... pounds ..	22, 043	675	32 $\frac{3}{8}$	11 $\frac{1}{4}$	2, 480
Hay..... tons ..	82, 569	1 $\frac{3}{8}$	49, 541	13 00	1, 073, 397
Total.....			261, 390 $\frac{3}{8}$		8, 561, 918
NEBRASKA TERRITORY.					
Indian corn bushels..	1, 366, 622	28 $\frac{1}{2}$	47, 951	99	1, 352, 956
Wheat..... " ..	126, 000	14	9, 000	1 50	189, 000
Rye..... " ..	1, 600	16	100	1 29	2, 064
Oats..... " ..	223, 284	28	7, 974	68 $\frac{1}{8}$	152, 577
Barley..... " ..	4, 630	20	231	1 22 $\frac{1}{2}$	5, 672
Buckwheat..... " ..					
Potatoes..... " ..	106, 102	51 $\frac{3}{8}$	2, 053 $\frac{1}{4}$	2 08	220, 692
Tobacco..... pounds ..	1, 140				
Hay..... tons ..	18, 391	1 $\frac{1}{8}$	13, 793	7 33	134, 806
Total.....			81, 102		2, 057, 767

TABLE No. 2.—Summary for each State, showing the amount, the number of acres, and the value of each crop for 1864.

States.	Indian corn.		
	Bushels.	Acres.	Value of crop.
Maine.....	1, 410, 017	52, 223	\$2, 961, 036
New Hampshire.....	1, 334, 628	45, 242	2, 816, 065
Vermont.....	1, 585, 020	40, 851	3, 106, 639
Massachusetts.....	2, 280, 324	72, 319	4, 651, 861
Rhode Island.....	474, 208	15, 676	991, 095
Connecticut.....	2, 059, 835	66, 446	3, 728, 301
New York.....	22, 628, 862	771, 526	38, 016, 483
New Jersey.....	8, 464, 262	267, 349	14, 401, 337
Pennsylvania.....	28, 381, 685	962, 091	43, 920, 658
Maryland.....	10, 509, 243	488, 802	17, 024, 974
Delaware.....	3, 892, 337	191, 458	6, 033, 122
Kentucky.....	42, 828, 706	1, 502, 761	41, 399, 749
Ohio.....	68, 202, 641	2, 176, 911	65, 474, 535
Michigan.....	11, 088, 801	455, 766	13, 971, 889
Indiana.....	74, 284, 363	2, 561, 529	70, 941, 567
Illinois.....	138, 356, 135	4, 192, 610	103, 767, 101
Missouri.....	36, 635, 011	1, 366, 978	35, 535, 961
Wisconsin.....	10, 087, 053	325, 388	9, 481, 829
Iowa.....	55, 261, 240	1, 507, 124	37, 370, 414
Minnesota.....	4, 647, 329	140, 828	4, 368, 485
Kansas.....	4, 673, 081	186, 923	6, 402, 121
Nebraska Territory.....	1, 366, 622	47, 951	1, 352, 956
Total.....	530, 451, 403	17, 438, 752	527, 718, 183

Summary for each State, &c.—Continued.

States.	Wheat.		
	<i>Bushels.</i>	<i>Acres.</i>	<i>Value of crop.</i>
Maine	167,194	15,999	\$434,704
New Hampshire	251,518	20,121	674,068
Vermont	497,951	35,568	1,282,224
Massachusetts	128,143	8,009	308,825
Rhode Island	1,413	94	3,532
Connecticut	71,881	4,356	170,717
New York	10,918,615	839,893	25,622,350
New Jersey	1,582,113	105,474	3,686,323
Pennsylvania	12,523,404	1,043,617	30,056,170
Maryland	6,487,946	564,178	16,868,660
Delaware	1,054,954	87,912	2,668,834
Kentucky	3,882,275	378,758	7,628,670
Ohio	20,407,503	1,990,976	39,386,481
Michigan	13,966,153	1,163,846	27,373,660
Indiana	22,321,376	1,594,384	39,062,308
Illinois	33,371,173	2,328,763	51,725,318
Missouri	3,281,514	231,092	5,742,648
Wisconsin	14,168,317	1,491,401	21,016,337
Iowa	12,649,807	1,032,637	17,013,990
Minnesota	2,634,975	197,672	2,995,088
Kansas	201,598	13,439	405,212
Nebraska Territory	126,000	9,000	189,000
Total	160,695,823	13,158,089	294,315,119

States.	Rye.		
	<i>Bushels.</i>	<i>Acres.</i>	<i>Value of crop.</i>
Maine	128,612	10,718	\$263,012
New Hampshire	109,373	7,543	223,121
Vermont	140,798	9,263	264,700
Massachusetts	413,957	27,597	827,914
Rhode Island	37,302	2,194	74,604
Connecticut	721,889	48,126	1,378,808
New York	5,205,759	359,018	8,875,819
New Jersey	1,424,523	105,520	2,414,566
Pennsylvania	6,843,427	480,240	11,645,232
Maryland	529,744	37,838	868,780
Delaware	41,153	2,627	64,473
Kentucky	554,014	41,344	750,689
Ohio	704,974	57,548	931,741
Michigan	434,894	35,419	592,905
Indiana	397,632	28,402	520,898
Illinois	850,071	56,671	862,822
Missouri	237,542	15,168	264,463
Wisconsin	810,343	66,150	884,624
Iowa	119,333	7,955	109,786
Minnesota	161,974	11,303	149,016
Kansas	4,061	239	5,076
Nebraska Territory	1,600	100	2,064
Total	19,872,975	1,410,983	31,975,013

Summary for each State, &c.—Continued.

States.	Oats.		
	<i>Bushels.</i>	<i>Acres.</i>	<i>Value of crop.</i>
Maine.....	2, 102, 994	95, 591	\$2, 124, 024
New Hampshire.....	1, 095, 891	45, 662	1, 008, 220
Vermont.....	3, 611, 938	109, 452	3, 142, 386
Massachusetts.....	1, 194, 827	45, 430	1, 242, 620
Rhode Island.....	182, 873	5, 542	180, 587
Connecticut.....	2, 011, 334	67, 044	2, 011, 334
New York.....	35, 724, 746	1, 553, 250	33, 581, 261
New Jersey.....	5, 735, 647	176, 481	5, 227, 640
Pennsylvania.....	37, 657, 329	1, 287, 430	32, 761, 876
Maryland.....	5, 429, 894	246, 813	4, 724, 008
Delaware.....	1, 184, 437	49, 351	947, 550
Kentucky.....	4, 346, 326	179, 229	3, 444, 463
Ohio.....	14, 428, 833	497, 546	10, 417, 617
Michigan.....	4, 810, 136	185, 005	3, 643, 678
Indiana.....	6, 084, 793	234, 030	4, 478, 408
Illinois.....	24, 273, 751	779, 003	14, 806, 988
Missouri.....	2, 128, 522	84, 297	1, 521, 893
Wisconsin.....	12, 043, 538	437, 945	7, 226, 123
Iowa.....	9, 313, 369	291, 042	4, 936, 086
Minnesota.....	2, 259, 232	78, 582	1, 660, 536
Kansas.....	146, 500	5, 051	141, 372
Nebraska Territory.....	223, 284	7, 974	152, 577
Total.....	175, 990, 194	6, 461, 750	139, 381, 247

States.	Barley.		
	<i>Bushels.</i>	<i>Acres.</i>	<i>Value of crop.</i>
Maine.....	668, 424	37, 135	\$970, 215
New Hampshire.....	96, 278	5, 349	162, 710
Vermont.....	94, 102	4, 277	151, 504
Massachusetts.....	149, 584	7, 479	266, 260
Rhode Island.....	41, 506	1, 660	68, 070
Connecticut.....	18, 732	797	33, 905
New York.....	3, 710, 911	197, 915	6, 469, 355
New Jersey.....	29, 098	1, 454	51, 940
Pennsylvania.....	630, 491	35, 027	1, 078, 140
Maryland.....	26, 591	997	47, 509
Delaware.....	4, 595	170	8, 616
Kentucky.....	256, 713	11, 003	408, 602
Ohio.....	1, 585, 630	67, 016	2, 473, 583
Michigan.....	338, 388	17, 624	527, 885
Indiana.....	339, 198	14, 133	529, 149
Illinois.....	1, 144, 790	50, 520	1, 568, 362
Missouri.....	162, 809	7, 078	240, 415
Wisconsin.....	674, 919	50, 937	1, 005, 629
Iowa.....	584, 446	27, 830	702, 796
Minnesota.....	148, 592	1, 429	163, 212
Kansas.....	5, 901	256	7, 494
Nebraska Territory.....	4, 630	231	5, 672
Total.....	10, 716, 328	540, 317	16, 941, 023

Summary for each State, &c.—Continued.

States.	Buckwheat.		
	<i>Bushels.</i>	<i>Acres.</i>	<i>Value of crop.</i>
Maine	350, 837	18, 465	\$449, 071
New Hampshire	87, 447	4, 564	115, 430
Vermont	210, 516	10, 954	218, 937
Massachusetts	110, 972	6, 829	138, 715
Rhode Island	3, 097		
Connecticut	387, 477	23, 342	523, 094
New York	5, 677, 490	313, 488	6, 453, 414
New Jersey	921, 256	54, 191	1, 326, 609
Pennsylvania	7, 577, 955	404, 157	8, 847, 262
Maryland	189, 285	9, 657	299, 070
Delaware	15, 641	782	15, 641
Kentucky	14, 187	698	19, 507
Ohio	1, 300, 141	76, 479	1, 430, 155
Michigan	823, 453	68, 620	975, 792
Indiana	272, 171	14, 712	338, 399
Illinois	280, 370	16, 492	308, 407
Missouri	72, 461	4, 615	77, 533
Wisconsin	73, 258	4, 440	65, 016
Iowa	276, 524	15, 800	315, 237
Minnesota	31, 714	1, 796	39, 114
Kansas	24, 288	1, 619	30, 360
Nebraska Territory			
Total	18, 700, 540	1, 051, 700	21, 986, 763

States.	Potatoes.		
	<i>Bushels.</i>	<i>Acres.</i>	<i>Value of crop.</i>
Maine	7, 189, 151	50, 274	\$4, 816, 731
New Hampshire	3, 842, 154	23, 427	2, 305, 292
Vermont	5, 920, 810	36, 434	3, 197, 237
Massachusetts	3, 384, 878	25, 546	3, 147, 937
Rhode Island	525, 727	4, 123	512, 584
Connecticut	1, 833, 148	13, 993	1, 521, 513
New York	29, 753, 312	257, 984	19, 637, 186
New Jersey	3, 989, 179	46, 033	4, 308, 313
Pennsylvania	12, 661, 424	114, 759	11, 268, 667
Maryland	1, 061, 994	19, 309	1, 274, 393
Delaware	327, 540	2, 620	432, 353
Kentucky	1, 255, 921	15, 474	1, 377, 327
Ohio	4, 615, 881	48, 082	4, 211, 991
Michigan	3, 422, 078	43, 317	2, 788, 994
Indiana	2, 904, 847	36, 310	2, 890, 323
Illinois	4, 511, 083	55, 521	5, 187, 745
Missouri	776, 630	19, 913	1, 361, 691
Wisconsin	3, 582, 068	30, 356	1, 970, 137
Iowa	2, 520, 481	33, 164	2, 806, 136
Minnesota	2, 163, 141	19, 313	1, 452, 395
Kansas	184, 480	4, 290	494, 406
Nebraska Territory	106, 102	2, 053	220, 692
Total	96, 532, 029	902, 295	77, 184, 043

Summary for each State, &c.—Continued.

States.	Tobacco.		
	Pounds.	Acres.	Value of crop.
Maine.....			
New Hampshire.....	64,000	65	\$16,000
Vermont.....	59,000		
Massachusetts.....	6,760,000	4,097	1,690,000
Rhode Island.....	1,848	1 ³⁷ / ₁₀₀	545
Connecticut.....	9,900,218	6,828	2,475,054
New York.....	12,912,662	15,085	3,212,025
New Jersey.....	179,755	25	44,939
Pennsylvania.....	6,124,551	5,732	1,133,042
Maryland.....	33,292,968	44,391	4,550,039
Delaware.....	14,057		
Kentucky.....	56,956,469	73,969	6,834,776
Ohio.....	29,017,931	33,335	3,917,421
Michigan.....	248,473	248	49,695
Indiana.....	8,767,065	10,241	1,227,389
Illinois.....	18,867,722	20,802	3,045,789
Missouri.....	13,697,063	24,372	1,009,257
Wisconsin.....	148,083	151	22,212
Iowa.....	390,522	408	97,630
Minnesota.....	34,659	43 ¹ / ₂	6,932
Kansas.....	22,043	32 ³ / ₈	2,480
Nebraska Territory.....	1,140		
Total.....	197,460,229	239,826 ³⁷ / ₁₀₀	29,335,225

States.	Hay.		
	Tons.	Acres.	Value of crop.
Maine.....	1,085,705	1,240,806	\$22,799,805
New Hampshire.....	694,161	694,161	14,577,381
Vermont.....	850,127	850,127	15,259,780
Massachusetts.....	760,517	760,517	22,054,993
Rhode Island.....	62,044	62,044	1,954,386
Connecticut.....	449,956	374,963	12,148,812
New York.....	3,921,264	3,547,810	90,385,135
New Jersey.....	436,496	277,770	11,660,991
Pennsylvania.....	1,796,336	1,381,797	44,100,049
Maryland.....	167,909	125,931	4,533,543
Delaware.....	33,111	22,074	993,330
Kentucky.....	112,325	84,243	2,264,472
Ohio.....	1,415,096	1,061,322	27,424,560
Michigan.....	847,737	762,963	16,386,756
Indiana.....	962,805	641,870	17,147,557
Illinois.....	2,166,725	1,444,483	33,215,894
Missouri.....	399,599	279,719	7,242,731
Wisconsin.....	789,765	691,044 ³ / ₄	10,266,945
Iowa.....	814,764	501,394	7,748,406
Minnesota.....	249,289	166,192	2,333,345
Kansas.....	82,569	49,541	1,073,397
Nebraska Territory.....	18,391	13,793	134,806
Total.....	18,116,691	15,034,564 ³ / ₄	365,707,074

TABLE NO. 3.

General summary showing the number of bushels, &c., of each crop, the number of acres of each, the value of each, and the bushels, acres, and value of all, and the increase and decrease of the same, for the years 1863 and 1864, and the comparison between the same years.

AMOUNT OF CROPS.

	1863.	1864.	Increase.	Decrease.
Indian corn	397, 839, 212	530, 451, 403	132, 612, 191	-----
Wheat	173, 677, 928	160, 695, 823	-----	12, 982, 105
Rye	19, 989, 335	19, 872, 975	-----	116, 360
Oats	170, 129, 864	175, 990, 194	5, 860, 330	-----
Barley	12, 158, 195	10, 716, 328	-----	1, 442, 567
Buckwheat	15, 786, 122	18, 700, 540	2, 914, 418	-----
Potatoes	98, 965, 198	96, 532, 029	-----	2, 433, 169
Total	888, 546, 554	1, 012, 959, 292	141, 386, 939	16, 974, 201
Tobacco	163, 353, 082	197, 460, 229	34, 107, 147	-----
Hay	18, 346, 730	18, 116, 691	-----	230, 039

ACREAGE OF CROPS.

Indian corn	15, 312, 441	17, 438, 752	2, 126, 311	-----
Wheat	13, 098, 936	13, 158, 089	59, 153	-----
Rye	1, 439, 607	1, 410, 983	-----	28, 624
Oats	6, 686, 174	6, 461, 750	-----	224, 424
Barley	557, 299	540, 317	-----	16, 982
Buckwheat	1, 054, 060	1, 051, 700	-----	2, 360
Potatoes	1, 129, 804	902, 295	-----	227, 509
Tobacco	216, 423	239, 826	23, 403	-----
Hay	15, 641, 504	15, 034, 564	-----	606, 940
Total	55, 136, 248	56, 238, 276	2, 208, 867	1, 106, 839

VALUE OF CROPS.

Indian corn	\$278, 089, 609	\$527, 718, 183	\$249, 628, 574	-----
Wheat	197, 992, 837	294, 315, 119	96, 322, 282	-----
Rye	20, 589, 015	31, 975, 013	11, 385, 998	-----
Oats	105, 990, 905	139, 381, 247	33, 390, 342	-----
Barley	13, 496, 373	16, 941, 023	3, 444, 650	-----
Buckwheat	12, 660, 469	21, 986, 763	9, 326, 294	-----
Potatoes	55, 024, 650	77, 184, 043	22, 159, 393	-----
Tobacco	24, 239, 609	29, 335, 225	5, 095, 616	-----
Hay	247, 680, 855	365, 707, 074	118, 026, 219	-----
Total	955, 764, 322	1, 504, 543, 690	548, 779, 368	-----

The above tables of the general summary do not show the exact comparative differences between the years 1863 and 1864, because the latter year embraces the crops of Kentucky, which are not in the year of 1863. Deducting Kentucky from 1864, the comparison will be as follows :

Table of comparison between 1863 and 1864.

	1863.	1864.	Increase.	Decrease.
Total, bushels.....	888,546,554	959,821,150	71,274,596	-----
Total tobacco, pounds.....	163,353,082	140,503,760	-----	22,849,322
Total hay, tons.....	18,346,730	18,004,366	-----	342,364
Total Acreage.....	55,136,248	53,950,797	-----	1,185,451
Total value of crops.....	\$955,764,322	1,440,415,435	\$484,651,113	-----

Explanation and comment on the foregoing tables.

The first of these three tables exhibits the *amount*, the *yield* per acre, the *total acreage*, the *price* per bushel, &c., and the *total value* of each of the crops named in the several States. The *amount* is estimated from the returns of correspondents in *tenths*, increase or decrease, of the preceding crops, and the *yield* per acre and *price* per bushel, &c., from their returns also. The average yield per acre and the average price per bushel, &c., are ascertained for each State from them. The *total acreage* is derived by dividing the yield per acre into the amount of the crop, and the *total value* by multiplying the price per bushel, &c., into the amount.

A more accurate way would be to make this division and multiplication into the crops of each county, instead of into the estimates for each State, but this cannot be done, for the Interior Department has not yet published them as given by the census returns of 1860. The returns of each State, as given in the abridged census report, is the basis upon which the amount of the crops for 1862, 1863, and 1864 have been estimated. But as the excess of one county is much counterbalanced by the deficiency of another, or more than counterbalanced by a third, the general result, in this way, from the many returns for each State, affords a much closer approximation than would be supposed at first view. This fact we have determined by various means.

The prices for 1863 were taken in November of that year, and for 1864 on the 1st day of January, 1865. This time is best to show the value of the crops to the farmer, as so large a portion of the crops is sold in October, November, and December.

The table of comparison, between 1863 and 1864, exhibits much that is interesting. There is a large increase in the number of bushels of grain, (71,274,596,) a decrease in tobacco of 22,849,322 pounds, a decrease of hay of 342,264 tons, a decrease in the acreage of 1,185,451 acres, but an increase in value of \$484,651,113.

The first increase is from the corn crop, which regained nearly all of its loss in 1863; the second from the condition of the currency, and is a subject of not only present but future interest.

The *value* of the crops, the market value of gold when the prices were taken, and the per cent. increase of the value of both, are as follows:

Years.	Value of crops.	Rate of gold.	Gold, increase per cent.	Increase value of crops per cent.
1862..	\$706,887,495	131	—	—
1863..	955,764,322	147	12	35
1864..	1,440,415,435	227	54	50

An examination of the increase of the different crops in 1863 shows that it was chiefly in those most demanded by government for war purposes, hence the difference between 12 per cent. and 35 per cent., being 23 per cent., may be attributed to the advance in value occasioned chiefly by the war demand. The

increase in gold value in 1864 is 4 per cent. over the increase in the value of the crops of that year, the one being 54 per cent., the other 50 per cent. This comparative decrease in the value of the crops may be attributed to the decreased foreign demand, as seen in the decreased exports.

The total increase from November, 1862, to January 1, 1865, in gold value is 73 per cent., and of the value of crops 103 per cent., showing the war demand chiefly has added about 30 per cent. to the value of the crops, and the increased value of gold over currency about 73 per cent.

IMPORTS AND EXPORTS.

The more complete returns of imports and exports than published in the last monthly report are as follows, taken from the New York Journal of Commerce :

Imports at New York.

	1862.	1863.	1864.
Dry goods	\$56, 121, 227	\$67, 274, 547	\$71, 589, 752
General merchandise	117, 140, 813	118, 814, 219	144, 270, 386
Specie	1, 390, 277	1, 525, 811	2, 265, 622
Total imports	174, 652, 317	187, 614, 577	218, 125, 760

Exports at New York.

	1862.	1863.	1864.
Domestic produce	\$149, 179, 591	\$164, 249, 177	\$201, 855, 989
Foreign merchandise free	2, 853, 848	1, 037, 212	2, 142, 458
Foreign merchandise dutiable	4, 901, 383	5, 424, 579	17, 824, 095
Total produce and merchandise	156, 934, 822	170, 710, 968	221, 822, 542
Specie	59, 437, 021	49, 754, 066	50, 825, 621
Total exports	216, 371, 843	220, 465, 034	272, 648, 163

It will be remembered that the values of the *imports* are GOLD values as fixed on the merchandise at the ports from whence imported, and the values of the *exports* of produce and merchandise are CURRENCY values at the port of New York.

EXPORTS AND PRICES OF PRODUCE.

Table of the exports from New York of the leading agricultural products from January 1 to February 22, 1865, compared with those during the same time in 1864, and their prices in New York and Chicago.

	Jan. 1 to Feb. 22, 1865.	Jan. 1 to Feb. 22, 1865.	Prices in N. York Feb. 22, 1865.	Prices in Chicago Feb. 14, 1865.
Wheat flour.....barrels..	\$224, 715	\$308, 998	\$9 90 to 12 00	\$6 00 to 10 00
Rye flour.....barrels..	397	580	-----	6 25 to 6 50
Corn meal.....barrels..	24, 409	19, 742	7 75 to 8 60	-----
Wheat.....bushels..	105, 578	2, 417, 190	2 60	1 27 to 1 51½
Corn.....bushels..	77, 346	20, 847	1 90	77 to 78
Rye.....bushels..	141	255	-----	96 to 1 02
Barley.....bushels..	-----	-----	2 08	1 20 to 1 25
Oats.....bushels..	12, 366	3, 797	1 07 to 1 13	59½ to 61
Peas.....bushels..	9, 786	46, 622	-----	-----
Cotton.....bales..	6, 831	205	84 to 85	-----
Hay.....bales..	5, 844	2, 806	*1 60 to 1 65	90 to 1 00
Hops.....bales..	5, 123	7, 933	25 to 50	33 to 55
Leaf tobacco..hogsheads..	18, 029	4, 324	15 to 42	-----
Leaf tobacco..packages..	17, 263	5, 523	-----	-----
Man'fac'd tobacco..pounds..	1, 020, 950	566, 330	-----	65 to 1 50
Petroleum.....gallons..	1, 446, 228	2, 198, 017	67 to 68	-----
Pork.....barrels..	21, 525	24, 974	33 25 to 35 87½	30 50 to 34 75
Beef.....barrels..	7, 427	5, 036	18 00 to 24 00	14 00 to 17 00
Beef.....tierces..	12, 058	18, 006	-----	-----
Cut meats.....pounds..	8, 467, 920	27, 650, 245	17 to 21	14½ to 16½
Butter.....pounds..	4, 010, 086	4, 641, 063	32 to 46	21 to 30
Cheese.....pounds..	7, 197, 309	4, 903, 290	15 to 25	18 to 24
Lard.....pounds..	6, 374, 577	5, 931, 101	20 to 25	20¼ to 23½
Tallow.....pounds..	5, 200, 226	7, 537, 074	15½ to 16½	13½ to 14½

* Per hundred pounds.

Shipments of specie from San Francisco.

[From the San Francisco Mercantile Gazette.]

Years.	East'n ports.	England.	China.	Panama.	Other ports.	Total.
1854	\$46, 533, 166	\$3, 781, 080	\$965, 887	\$204, 592	\$560, 908	\$52, 045, 633
1855	38, 730, 564	5, 182, 156	889, 675	231, 207	128, 129	45, 161, 731
1856	39, 895, 294	8, 666, 289	1, 308, 852	253, 268	573, 732	50, 697, 434
1857	35, 531, 778	9, 347, 743	2, 993, 264	410, 929	692, 978	48, 976, 692
1858	35, 891, 236	9, 265, 739	1, 916, 007	299, 265	175, 779	47, 584, 026
1859	40, 146, 437	3, 910, 930	3, 100, 756	279, 949	202, 390	47, 640, 462
1860	35, 719, 296	2, 672, 936	3, 374, 630	300, 819	258, 185	42, 325, 916
1861	32, 628, 011	4, 061, 779	3, 541, 279	349, 769	95, 920	40, 676, 758
1862	26, 194, 035	12, 950, 140	2, 060, 754	434, 508	322, 324	42, 561, 761
1863	10, 389, 339	28, 467, 256	4, 206, 370	2, 503, 296	505, 667	46, 071, 920
1864	12, 316, 122	34, 436, 423	7, 888, 973	378, 795	686, 888	55, 707, 201
Total ..	353, 975, 269	122, 749, 471	32, 846, 497	5, 646, 397	4, 202, 900	519, 413, 534

Wool product of California.

Year.	Pounds.	Inc'se per ct.		PRICES IN 1864.	
				Sp'g wool.	Fall wool.
1855	360,000	.....		
1856	600,000	66	Merino	23 to 25	17 to 18
1857	1,100,000	83	Half merino	21 to 23	17 to 18
1858	1,428,000	30	American	19 to 21	16 to 17
1859	2,378,000	66	Half American	18 to 19	15 to 16
1860	3,260,000	37	Mixed	15 to 18	14 to 15
1861	4,600,000	41	Burry	13 to 15	10 to 13½
1862	6,400,000	40			
1863	7,600,000	19			
1864	8,000,000	5			

Of the crop of 1864 there was shipped to—

New York	5,491,814 pounds.
Boston	842,850 “
Total to Atlantic States	<u><u>6,334,664 “</u></u>

METEOROLOGY.

FROM THE SMITHSONIAN INSTITUTION.

JANUARY, 1865.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain, (in inches and tenths,) for January, 1865, at the following places, as given by the observers named. The daily observations were made at 7 o'clock a. m. and 2 and 9 p. m.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
MAINE.								
Steuben	Washington	J. D. Parker	9	36	17	-12	16.1	4.44
Lee	Penobscot	Edwin Pitman	10, 13	34	20	-20	13.5	4.05
West Waterville	Kennebec	B. F. Wilbur	13	35	28	-13	14.7	4.90
Gardiner	do	Rev. F. Gardiner	6, 10, 14	34	17	-22	15.3	3.10
Lisbon	Androscoggin	Asa P. Moore	14	35	17	-20	14.7	2.68
Cornish	York	Silas West	7	39	17	-6	15.6	3.93
Cornishville	do	G. W. Guptill	7	50	16	-8	16.6	3.72
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	6, 14	30	8	-18	10.7	3.00
Shelburne	do	F. Odell	13	37	17	-18	16.8	2.42
Barnstead	Belknap	Chas. H. Pitman	6	38	28	-2	19.5	2.70
Claremont	Sullivan	S. O. Mead	6	38	28	-16	16.3	.....
Do	do	Arthur Chase	13	39	28	-12	16.5	2.95
VERMONT.								
Lunenburg	Essex	H. A. Cutting	6, 10, 23	32	17	-25	14.8	3.35
Craftsbury	Orleans	Jas. A. Paddock	14	32	8, 16, 18	-12	11.3	2.65
Middlebury	Addison	H. A. Sheldon	13	36	18	-16	14.9	2.15
Brandon	Rutland	R. V. Marsh	6	40	22	-26	.....	.....
MASSACHUSETTS.								
Sandwich	Barnstable	N. Barrows, M. D.	7	50	28	3	23.6	6.60
Topsfield	Essex	A. M. Merriam	6	44	28	9	25.8	3.82
Newbury	do	Jno. H. Caldwell	6	44	28	-3	19.9	.....
New Bedford	Bristol	Sam'l Rodman	7	48	29	4	23.3	5.18
State Lunatic Hosp'l.	Worcester	F. H. Rice	6, 31	40	8, 29	4	21.2	3.92
Mendon	do	Jno. G. Metcalf, M. D.	31	40	29	0	19.2	.....
Baldwinsville	do	Rev. E. Dewhurst	6, 14, 31	35	8, 28	-7	13.7	4.02
Springfield	Hampden	J. Weatherhead	6, 31	39	19	-9	19.5	3.23
Westfield	do	Rev. E. Davis	6, 14	36	19, 29	-5	18.6	3.28
Richmond	Berkshire	Wm. Bacon	6, 10	40	28	-4	17.7	5.45
Williams College	do	Prof. A. Hopkins	6	37	18	-5	17.3	.....

Table showing the range of the thermometer, &c., for January—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Ran.
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	6	38	8	2	19.2	3.55
Columbia	Tolland	Wm. H. Yeomans ..	30	44	19	0	23.7	.....
Middletown	Middlesex	Prof. Jno. Johnston..	13	42	19	-4	21.7	4.16
Colebrook	Litchfield	Charlotte Rockwell ..	6	38	19, 28	-5	15.9	.....
NEW YORK.								
Moriches	Suffolk	E. A. and N. Smith..	10	52	19	-9	26.3	6.07
South Hartford	Washington	G. M. Ingalsbe	6, 23	39	18	-13	17.1	2.60
Fishkill Landing	Dutchess	Wm. H. Denning ..	14	41	21	-1	18.5	2.82
Garrison's	Putnam	Thos. B. Arden	14	35	8, 20	2	19.0	2.46
Deaf and Dumb Inst.	New York	Prof. O. W. Morris..	31	45	28	6	26.6	3.41
Columbia College	do	Prof. Chas. A. Joy..	10	45	8, 28	7	22.8	.....
St. Xavier's College	do	Rev. Jno. M. Aubler..	10	46	8, 28	8	24.6	.....
Flatbush	Kings	Eli T. Mack	10	46	19	4	22.9	3.36
Newburg	Orange	James H. Gardiner..	14	40	18, 20, 21, 25, 26, 27, 28.	10	23.9	.....
Gouverneur	St. Lawrence	C. H. Russell	6	37	18	-28	13.3	1.48
Clinton	Oneida	Dr. H. M. Paine	13, 23	40	8	-10	20.9	2.42
South Trenton	do	Storrs Barrows .....	.....	.....	19, 26	-22	.....	5.70
Oneida	Madison	Dr. S. Spooner	6	40	8	-4	20.7	3.80
Cazenovia	do	Prof. Wm. Soule	13	34	8	-16	16.0	5.70
Theresa	Jefferson	S. O. Gregory	6	36	18	-31	12.8	1.13
Depauville	do	Henry Haas	10	36	18	-14	16.3	3.60
Oswego	Oswego	Wm. S. Malcolm	6, 13	36	8	-4	20.1	3.95
Palermo	do	E. B. Bartlett	6	36	8	-14	15.1	3.40
Skaneateles	Onondaga	W. M. Beauchamp ..	22	34	8	-7	17.2	.....
Baldwinsville	do	John Bowman	6, 22	35	8	-4	18.3	1.80
Auburn	Cayuga	John B. Dill	6	36	28	2	18.4	.....
Nichols	Tioga	Robert Howell	13	40	27	-9	17.3	.....
Palmyra	Wayne	Stephen Hyde	22	42	8, 16	8	24.7	.....
Geneva	Ontario	Rev. Dr. W. D. Wilson	13	39	28	4	20.3	2.54
Rochester	Monroe	Prof. C. Dewey	22	43	8, 18	4	20.6	2.83
Do	do	Dr. M. M. Mathews..	22	42	8, 18	4	21.1	2.83
Buffalo	Erie	Wm. Ives	22	37	18	-6	20.4	4.31
Jamestown	Chautauqua	Rev. S. W. Roe, M.D.	9	41	20	-9	17.2	.....
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	13	43	19	-11	22.3	4.89
Newark	Essex	W. A. Whitehead ..	10	44	19	3	23.2	4.09
New Brunswick	Middlesex	Geo. W. Thompson ..	6	44	19	-4	22.3	.....
Burlington	Burlington	John C. Deacon	10	57	19, 28	4	24.3	4.15
Progress	do	Thos. J. Beans	13	40	19	4	23.0	4.05
Mount Holly	do	M. J. Rhees, M.D. ..	10	54	19	0	25.4	.....
Moorestown	do	J. W. Lippincott ..	10	54	28	6	24.8	.....
Seaville	Cape May	Barker Cole	13	54	5	5	26.7	.....
Haddonfield	Camden	Jas. S. Lippincott ..	10	55	19	-1	25.8	3.60
Greenwich	Cumberland	R. C. Sheppard	10	52	5	7	26.4	3.81
PENNSYLVANIA.								
Fallsington	Bucks	Ebenezer Hance	10	52	5, 19, 28	6	25.0	3.10
Philadelphia	Philadelphia	Pf. J. A. Kirkpatrick	10	51	28	7	26.5	3.60

Table showing the range of the thermometer, &c., for January—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
PENNSYLVANIA—C'd.								
				°		°	°	In.
Germantown	Philadelphia	Thos. Meehan	31	44	28	2	.....	.....
Mooreland	Montgomery	Anna Spencer	10	48	19	2	29.2	3.05
Dyberry	Wayne	Theod. Day	10	39	18, 19	—10	13.9	.....
Nazareth	Northampton	L. E. Ricksecker	13	42	28	1	21.6	.....
North Whitehall	Lehigh	Edward Kohler	22, 31	40	19	—6	22.0	.....
Silver Spring	Lancaster	H. G. Bruckhart	13	45	26	3	23.3	.....
Mount Joy	do	J. R. Hoffer	13	46	28	4	24.9	3.15
Berwick	Columbia	John Eggert	10	40	28	—7	21.6	2.57
Harrisburg	Dauphin	Dr. John Heisely	13	39	28	9	25.0	4.15
Tioga	Tioga	E. T. Bentley	6	48	18	—14	19.3	2.36
Gettysburg	Adams	M. and H. E. Jacobs	13	43	28	2	21.0	4.24
Fleming	Center	Samuel Brugger	31	42	19	—8	19.2	2.75
Pennsville	Clearfield	Elisha Fenton	5, 6	41	19	—7	18.5	3.24
Blairsville	Indiana	W. R. Boyers	6	28	19	—5	15.0	4.30
Connellsville	Fayette	John Taylor	22	49	8, 19	—8	20.9	.....
Canonsburg	Washington	Rev. Wm. Smith, D.D.	9, 23	39	19	—8	.....	.....
DELAWARE.								
Wilmington	New Castle	Dr. Urban D. Hedges	10	53	28	5	26.9	6.80
MARYLAND.								
Annapolis	Anne Arundel	Wm. R. Goodman	10	47	28	8	29.4	4.68
St. Inigoes	St. Mary's	Rev. J. Stephenson	10	58	28	12	32.1	3.40
Sykesville	Carroll	Miss H. M. Baer	13	43	5, 8	5	22.1	3.50
SOUTH CAROLINA.								
Hilton Head	Beaufort	Capt. C. R. Suter	21	68	27	24	44.5	3.63
Beaufort	do	Dr. M. M. Marsh	23	66	1	19	42.4	4.76
MISSISSIPPI.								
Natchez	Adams	Robert McCary	3, 5	68	24, 25	20	44.7	8.05
KENTUCKY.								
Louisville	Jefferson	Mrs. L. Young	5	47	28	—6	25.8	3.41
Chilesburg	Fayette	Samuel D. Martin	22	50	28	0	.....	3.65
OHIO.								
Saybrook	Ashtabula	Jas. B. Fraser	22	40	18, 20	—1	19.6	.....
Austinburg	do	El. D. Winchester	6	46	20	—1	18.5	.....
New Lisbon	Columbiana	J. F. Benner	6	42	8, 19	—12	19.7	3.50
East Fairfield	do	S. B. McMillan	22	39	19	—5	20.2	2.88
Steubenville	Jefferson	R. Marsh .....	.....	42	.....	0	23.3	1.73
Welshfield	Geauga	B. F. Abell, A. M.	22	41	18, 25, 27	1	20.2	3.57
Milnersville	Guernsey	Rev. D. Thompson	5	48	20	—14	19.7	2.63
Cleveland	Cuyahoga	Mr. and Mrs. G. A. Hyde	5	43	19	3	23.2	1.77
Wooster	Wayne	Mr. and Mrs. Winger	5	42	19	—10	20.1	.....
Smithville	do	J. H. Myers	5	48	18, 19	—10	20.5	.....
Kelley's Island	Erie	Geo. C. Huntington	9, 13	42	25, 26	3	23.2	1.27
Norwalk	Huron	Rev. A. Newton	5	45	19	—2	21.7	1.17
Westerville	Franklin	Pf. H. A. Thompson	5	42	18, 25	—3	18.2	1.80
Kingston	Ross	Pf. John Haywood	5, 22	43	30	1	23.2	3.51
Portsmouth	Scioto	L. Engelbrecht	5	44	28	8	26.3	3.70

Table showing the range of the thermometer, &c., for January—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
OHIO—Continued.								
Urbana University..	Champaign	Pf. M. G. Williams..	22	42	1, 18	— 5	20.0	1.55
Hillsborough	Highland	J. McD. Mathews..	5	44	25	— 2	23.6	3.19
Ripley	Brown	Dr. G. Bambach	5	49	.....	.....	.....	4.27
Bethel	Clermont	Geo. W. Crane	5	43	25	— 1	21.4	1.29
Cincinnati	Hamilton	George W. Harper..	5	45	28	3	24.7	2.45
Do.	do	R. C. Phillips	5	47	28	—10	28.9	2.12
College Hill	do	John W. Hammitt..	5	43	25, 28	— 0	22.1	3.70
Do.	do	John H. Wilson	22, 31	40	28	0	22.5	4.13
MICHIGAN.								
Pontiac	Oakland	James A. Weeks	5	41	20	0	21.1	.....
Monroe	Monroe	Miss F. E. Whelpley.	5	44	11	0	23.7	.....
State Agric'l College.	Ingham	Prof. R. C. Kedzie ..	5	39	27	1	21.1	0.65
Garlick	Ontonagon	Edwin Ellis	30	33	17	— 4	.....	.....
INDIANA.								
Vevay	Switzerland	Chas. G. Boerner ..	5	45	28	— 4	26.3	.....
Pennville	Jay	Miriam Griest	13, 30	48	1	—11	20.1	.....
New Castle	Henry	T. B. Redding, A. M.	13	45	1	— 4	20.1	1.98
Madison	Jefferson	Rev. S. Collins	13	41	28	— 4	26.3	4.25
New Albany	Floyd	E. S. Crozier, M. D.	5	48	27, 28	2	25.4	2.80
South Bend	St. Joseph	Reuben Burroughs..	21	44	26	— 5	21.0	1.95
Indianapolis	Marion	W. W. Butterfield ..	5	44	18	— 6	29.9	.....
Do.	do	Royal Mayhew	31	45	18	— 4	22.2	1.72
Rensselaer	Jasper	Dr. J. H. Loughridge.	21	46	26	— 4	21.0	1.05
Bloomington	Parke	Miss M. A. Hobbs ..	29	48	28	— 2	33.4	.....
New Harmony	Posey	John Chappellsmith.	31	48	28	6	28.4	2.10
ILLINOIS.								
Chicago	Cook	Samuel Brookes	21	44	26	— 8	18.5	.....
Evanston	do	A. D. Langworthy ..	21	45	25, 26	— 7	20.4	.....
Riley	McHenry	E. Babcock	9, 20, 21	40	18	—15	17.8	0.60
Sandwich	DeKalb	Dr. N. E. Ballou	9	51	25, 26	— 8	20.6	0.25
Ottawa	La Salle	Mrs. E. H. Merwin ..	20	44	25	— 8	21.6	0.45
Winnebago	Winnebago	James W. Tolman ..	20	38	18	—18	17.4	0.27
Wyanet	Bureau	E. S. and Miss Phelps.	12, 20	44	18	—11	20.2	0.30
Tiskilwa	do	Verry Aldrich	20	42	25, 27, 28	0	22.5	.....
Elmira	Stark	O. A. Blanchard	12	47	26	— 8	21.4	0.30
Hennepin	Putnam	Smiley Shepherd	12, 20	42	19	—10	20.3	.....
Peoria	Peoria	Frederick Brendel ..	20	48	26	— 2	24.2	0.22
Springfield	Sangamon	G. M. Brinkerhoff ..	12	50	26	— 2	27.0	.....
Hoyleston	Washington	J. Ellsworth	5	50	26	— 1	25.7	0.50
Waverly	Morgan	Timothy Dudley	20	45	26	— 5	23.7	0.20
Galesburg	Knox	Prof. W. Livingston..	20	41	25, 26	— 7	21.0	0.30
Manchester	Scott	Dr. and Miss E. Grant	20	51	26	— 3	25.1	0.25
Augusta	Hancock	S. B. Mead, M. D.	20	48	26	— 7	22.1	0.15
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	21	41	18, 25, 26	— 4	20.6	0.27
Milwaukee	Milwaukee	I. A. Lapham, LL.D.	21	42	25	— 8	18.6	0.22
Do.	do	Carl Winkler	21	43	25	— 7	19.4	0.02
Green Bay	Brown	Fr. Deckner	5, 20	37	18	—11	15.3	0.61

Table showing the range of the thermometer, &c., for January—Continued.

Place.	County.	Observer's name.	Date.	Max.	Date.	Min.	Mean.	Rain.
WISCONSIN—Cont'd.								
New Holstein.....	Calumet	Ferd. Hachez	21	42	18	—12	16.6	0.50
Geneva.....	Walworth.....	William H. Whiting.....	21	40	25	—10	17.5	0.30
Delavan.....	do	Leveus Eddy.....	20, 21	38	18	—13	16.6	0.17
Waupacca.....	Waupacca.....	H. C. Mead.....	21	40	18	—13	16.6	0.50
Embarrass.....	do	E. Everett Breed.....	31	38	18	—22	15.5	1.00
Baraboo.....	Sauk	M. C. Waite.....	20	42	18	—10	20.3	0.48
MINNESOTA.								
St. Paul.....	Ramsey.....	Rev. A. B. Paterson.....	12	38	24	—17	13.7	0.66
Minneapolis.....	Hennepin.....	Wm. Cheney.....	12	42	18	—21	13.0	0.75
New Ulm.....	Brown.....	Charles Roos.....	4	41	18	—18	13.3	0.40
IOWA.								
Lyons.....	Clinton.....	Dr. J. P. Farnsworth.....	20	40	18, 25	—10	18.3	0.50
Dubuque.....	Dubuque.....	Asa Horr, M. D.....	12, 14	39	18	—16	15.3	0.24
Muscatine.....	Muscatine.....	J. P. Walton.....	20	44	18	—10	18.9	0.46
Monticello.....	Jones.....	Chauncey Mead.....	20	43	18	—13	14.1	0.29
Guttenberg.....	Clayton.....	P. Dorweiler.....	12, 20	36	18	—8	16.7	0.09
Iowa City.....	Johnson.....	Prof. T. S. Parvin.....	12	46	25	—10	20.5	0.30
Independence.....	Buchanan.....	D. S. Deering.....	12	43	18	—14	18.3	.....
Do.....	do	A. C. Wheaton.....	12	43	18, 26	—7	17.9	0.25
Waterloo.....	Black Hawk.....	T. Steed.....	12	46	23	—14	24.4	.....
Iowa Falls.....	Hardin.....	N. Townsend.....	12, 20	40	18	—4	16.9	0.16
Algona.....	Kossuth.....	Dr. F. & Miss McCoy.....	12	43	24, 26	—14	15.3	0.60
Clarinda.....	Page.....	Dr. S. H. Kridelbaugh.....	12	50	26, 28	—4	23.8	.....
MISSOURI.								
Allenton.....	St. Louis.....	A. Fendler.....	20	53	11	—7	25.4	0.65
Canton.....	Lewis.....	George P. Ray.....	20	53	26	—6	21.9	0.14
Harrisonville.....	Cass.....	John Christian.....	12	48	26	—6	25.5	0.45
Easton.....	Buchanan.....	P. B. Sibley.....	12	48	26	—10	22.8	0.13
KANSAS.								
Olatha.....	Johnson.....	H. Bockwith.....	12	52	26	—6	21.6	0.53
Agricultural College.....	Riley.....	H. L. Denison.....	14, 19, 31	49	23	—5	27.5	0.33
Fort Riley.....	Davis.....	James H. Pine.....	12, 19	55	26, 28	—1	29.7	.....
NEBRASKA.								
Bellevue.....	Sarpy.....	Rev. Wm. Hamilton.....	19	50	26	—9	23.2	0.13
Nursery Hill.....	Otoe.....	R. O. Thompson.....	12	50	26	—8	22.4	0.30
Addenda—Dec., 1864.								
KANSAS.								
Lawrence.....	Douglas.....	A. N. Fuller.....	1	59	11	—7	24.9	2.00
NEBRASKA.								
Elkhorn.....	Washington.....	Miss A. M. J. Bowen.....	1	49	11	—16	16.4	.....
MISSISSIPPI.								
Natchez.....	Adams.....	Robert McCary.....	2, 16, 19	76	12	16	52.3	7.47
UTAH.								
Great Salt Lake City.....	Great Salt Lake.....	W. W. Phelps.....	5	49	21, 22	14	30.9	4.54
CALIFORNIA.								
Sacramento.....	Sacramento.....	Thos. M. Logan, M. D.....	5	61	18, 19, 22, 23.	36	50.2	7.87
Meadow Valley.....	Plumas.....	Mrs. M. D. Smith.....	5	53	18	3	36.7	15.80

Table showing the average temperature and fall of rain (in inches and tenths) for the month of January in each year named, and for the five years first named, collectively, with the average number of places in each State in which the observations were made.

States and Territories.	Av. number of places.	Averages, 1855.		Averages, 1856.		Averages, 1857.		Averages, 1858.		Averages, 1859.		Av. for five years.		Averages, 1864.		Averages, 1865.	
		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.		Mean temp.	
		Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.	In.
Maine.....	5	24.3	4.83	12.6	2.46	11.9	7.81	22.6	3.81	17.7	4.81	17.8	4.74	22.2	4.02	15.2	3.83
New Hampshire.....	4	25.8	5.65	15.8	2.95	10.4	3.34	25.1	2.46	16.1	3.82	18.6	3.64	20.1	3.27	16.0	2.77
Vermont.....	4	25.3	1.95	11.4	1.48	8.2	2.57	22.7	1.88	18.1	2.63	17.1	2.10	22.5	3.69	13.7	2.72
Massachusetts.....	12	23.1	4.83	16.0	3.24	16.0	5.05	31.2	3.20	20.0	7.04	24.1	4.68	25.5	3.03	20.0	4.44
Rhode Island.....	1	30.0	6.45	18.6	2.95	16.3	5.50	33.1	3.33	20.3	5.75	25.5	5.26	27.3	4.66	.....	.....
Connecticut.....	1	29.0	5.40	20.3	4.61	15.8	4.32	32.4	3.03	25.8	7.53	24.8	4.98	26.5	3.34	20.1	3.86
New York.....	19	27.7	3.36	16.9	2.82	13.9	3.04	31.0	2.95	26.4	3.52	23.2	3.00	26.4	3.26	19.7	3.31
New Jersey.....	5	32.4	3.37	20.6	3.07	19.6	4.43	37.2	3.58	31.7	5.47	28.3	4.10	29.9	2.03	24.4	4.10
Pennsylvania.....	19	30.0	2.72	18.6	2.54	18.4	2.69	36.3	2.15	36.5	2.52	26.8	2.72	28.6	2.59	21.7	3.32
Delaware.....	1	.....	.....	21.1	.....	.....	.....	40.7	1.17	.....	4.84	27.3	3.00	.....	.....	25.9	6.80
Maryland.....	1	33.8	3.38	21.9	3.59	21.9	2.88	38.6	1.67	31.2	4.84	30.1	3.92	34.0	2.94	27.9	3.86
District of Columbia.....	1	35.1	.....	21.6	4.00	21.8	0.89	40.2	1.67	36.3	4.54	31.0	2.76	33.5	2.58	.....	.....
South Carolina.....	5	27.2	1.31	36.4	6.47	35.4	2.57	53.2	3.98	45.3	3.33	35.3	3.53	46.0	1.35	43.5	4.30
Tennessee.....	6	39.6	3.64	25.6	1.38	26.9	2.16	45.8	4.56	39.6	3.31	35.5	3.01	.....	.....	.....	.....
Kentucky.....	4	38.7	3.32	20.9	1.80	24.7	1.53	42.1	2.66	34.0	3.05	32.1	2.47	28.7	3.19	25.8	3.53
Ohio.....	10	31.4	2.73	17.4	1.69	16.8	1.39	37.3	1.72	30.5	2.42	26.7	1.99	26.5	2.47	21.8	2.61
Michigan.....	7	25.8	3.50	13.3	1.21	11.3	2.70	31.7	4.01	25.5	2.70	24.5	2.83	24.4	1.61	22.0	0.65
Indiana.....	4	23.6	4.66	21.5	0.80	16.9	1.01	38.5	3.18	29.9	2.29	26.5	2.28	27.7	3.33	24.9	2.26
Illinois.....	12	28.2	8.24	14.4	0.96	6.9	0.72	34.5	1.82	26.2	1.78	23.0	2.90	21.7	2.17	21.7	0.32
Wisconsin.....	9	21.2	2.60	9.7	8.50	6.0	1.32	29.7	2.07	19.7	1.21	17.4	3.11	18.4	0.38	13.3	0.60
Minnesota.....	3	.....	.....	9.7	.....	.....	.....	30.9	2.51	11.1	0.98	7.9	1.69	11.0	1.28	18.4	0.32
Iowa.....	7	23.5	2.08	9.3	2.35	6.7	0.77	32.0	2.03	22.9	1.05	18.7	1.39	17.0	1.86	25.0	0.29
Missouri.....	2	23.8	.....	.....	1.04	3.7	0.41	33.6	2.85	33.4	2.32	20.2	2.25	17.4	0.41	23.8	0.22
Nebraska Territory.....	1	.....	.....	20.1	1.63	19.3	0.41	32.9	1.82	22.4	0.91	24.6	1.38	.....	.....	.....	.....
Kansas.....	2	.....	.....	.....	.....	.....	.....	37.7	1.79	30.8	1.43	34.2	1.61	.....	.....	.....	.....
Nebraska Territory.....	1	.....	.....	.....	.....	.....	.....	37.7	1.79	30.8	1.43	34.2	1.61	.....	.....	.....	.....
California.....	12	44.4	2.67	65.2	4.57	50.1	1.49	46.7	2.50	45.6	1.41	50.4	2.53	.....	.....	26.3	0.43

SNOW AND ICE.

In the New England and Middle States, and as far west as Indiana, the snows in January were frequent and some of them deep; but west of that State very little snow fell, and at most of the stations no rain.

Cornish, Maine.—Twenty-six and a quarter inches of snow in January; nearly half of it fell on the 23d and 24th.

Gardiner, Maine.—Amount of snow in January 32 $\frac{3}{4}$ inches. Good sleighing, and river closed every day during the month. The mean temperature was 3.63° lower than the mean of January for the previous twenty-eight years. The coldest January in those years was in 1844, 7.08°; the warmest in 1841, 26.43°.

West Waterville, Maine.—Amount of snow, forty-three inches.

Lisbon, Maine.—Amount of snow, fifteen inches; about ten inches fell on the 23d, drifting badly, blocking up the railroads, and stopping trains the next day. On the last day of the month there was three feet of snow in the woods, and about two feet on an average in the roads.

Lee, Maine.—Forty and a half inches of snow during the month; fifteen inches fell on the 23d and 24th. January 31: There is now something over three feet of snow on the ground in the woods.

Cornishville, Maine.—Thirty-four inches of snow fell during the month; twelve inches of it on the 23d.

Steuben, Maine.—Thirty-three and a quarter inches of snow during the month; the deepest were six inches on the 2d, nine inches on the 4th, 5th, and nine inches on the 23d, 24th.

Claremont, N. H.—January has been characterized by steady cold and no thaw of any account. The sleighing was never better than now. It commenced early in the season and has been enjoyed without intermission. It would be difficult to find a month of January containing so many days favorable to work, both by men and cattle. The farmers say this has been a good season for stock, the cold having kept everything dry and clean. Seventeen and a half inches of snow fell during the month; seven inches fell during the storm of the 23d.

Shelburne, N. H.—Seven inches of snow fell on the 23d. The trains were delayed by this storm on the railroads throughout the State. Twenty-four and two-tenths inches of snow in the month.

Barnstead, N. H.—Twenty-seven inches of snow in January; twelve of it on the 23d.

Stratford, N. H.—Thirty inches of snow during the month; ten in the storm of the 23d.

Craftsbury, Vermont.—Amount of snow in January, twenty-seven inches.

Lanenburg, Vermont.—Amount of snow, thirty-one inches; twelve inches on the 23d and 24th.

Middlebury, Vermont.—Depth of snow during the month twenty and a quarter inches.

Westfield, Massachusetts.—The sleighing has been very good every day during the month.

New Bedford, Massachusetts.—The snow that has fallen has at no time made good sleighing, and there have been few days that sleighs were out in large numbers. No obstruction by ice in the outer harbor, and the approach to the wharves below the bridge has been kept open by the steam ferry-boat, which occasionally ran down the main channel between the fort and Palmer's island, to let the broken ice drift out with the wind and tide.

Worcester, Massachusetts.—One and a half inch of snow on the 24th; fifteen and a half inches during the month.

Baldwinsville, Massachusetts.—Nineteen inches of snow during the month eight inches on the 23d.

Topsfield, Massachusetts.—Fifteen and a half inches of snow during the month; on the 23d one inch, also rain and hail.

Sandwich, Massachusetts.—Amount of snow during the month eighteen and a quarter inches rain on the 23d. This has been a remarkably cold January, and also remarkable for the number of snow-storms unaccompanied with heavy wind, thus giving an unusual number of days of sleighing. The ice was five and a half inches thick on Sandwich pond on the 11th, and nearly ten inches on the 31st.

Newbury, Massachusetts.—Ten and a half inches of snow during the month. On the 23d a heavy fall, the most of the forenoon; snow from 1 p. m. to 10½ p. m. three inches.

Springfield, Massachusetts.—This has been the coldest January since 1857; good sleighing all the month.

Middletown, Connecticut.—Eleven inches of snow in January; rain on the 23d.

Columbia, Connecticut.—Eleven inches of snow during the month; rain and fog on the 23d; snow squalls on the 24th.

Theresa, New York.—Amount of snow 15.2 inches; the greatest depth of snow on the ground this month, twenty-six inches; snow and rain on the 22d.

Moriches, New York.—Fifteen and a half inches of snow during the month; sleet on the 23d.

Nichols, New York.—January 23, snow from 7 a. m. to sunset; between six and seven inches fell. 25th, Susquehanna river closed. 27th, teams cross in various places on the ice.

Palmyra, New York.—January 23, began snowing at 10 a. m.; stopped at 5 p. m.; melted as fast as it fell.

Jamestown, New York.—Forty-three inches of snow fell in January. The month has been good winter weather. The snow is deeper than has been known for nine years. Many roads are wholly impassable, and there are drifts which may hardly be expected to disappear before May. The ice in Chautauqua lake is about ten inches. There are no places bare of snow. In riding thirty miles, to day, (February 1,) I have not seen a field bare of snow; half of the way I rode over snow drifted six feet deep.

South Trenton, New York.—Fifty-seven inches of snow during the month; four inches on the 23d.

Garrison, New York.—The river closed on the 26th of December, and has continued so through January. Fourteen inches of snow this month; two inches on the 23d.

Clinton, New York.—Twenty-four inches of snow during the month; six inches from the 21st to the 23d.

New York, New York.—Eleven inches of snow during the month; rain on the 23d. Snow for a few minutes at 8 p. m. on the 24th; hardly covered the ground.

Oswego, New York.—Forty-eight inches of snow.

Rochester, New York.—Twenty-three and a half inches of snow. Good sleighing from the 11th to the close of the month. The mean temperature of January, 1857, was 15°, the lowest on record.

Gouverneur, New York.—Amount of snow twenty-three inches.

Fishkill, New York.—Fifteen inches of snow. Newburgh bay closed by ice on the 8th; crossing on foot.

Skaneateles, New York.—Seventy inches of snow during the month; eighteen inches on the 23d.

South Hartford, New York.—Twenty-one inches of snow during the month.

No snow or rain recorded on or near the 23d. January 11: In consequence of the frozen rain adhering to the track of the railroad, communication by rail was delayed full twenty hours. Two powerful engines were thirteen hours in accomplishing the distance of twenty-three miles, from Whitehall to Fort Edward. January 21: Ice trade on the Hudson river at Fort Edward commenced.

Vermillion, New York.—Thirty-three inches of snow during the month; three inches on the 23d and 24th. This January has been the coldest for five years.

Cazenovia, New York.—Fifty-seven inches of snow during the month; twelve inches on the 2d, ten and a half inches on the 7th, six inches on the 23d, and five inches on twelve other days. The mean temperature of the month is more than four degrees below the average of the last thirteen years; only two Januaries were colder, those of 1856 and 1857.

Depauville, New York.—Depth of snow at the end of the month, three feet on a level; no frost in the ground below the snow.

Buffalo, New York.—Amount of snow during the month forty-six inches. This January was colder by six degrees than the same period for seven years, with three times the amount of snow. There have been but twelve entirely clear days in four months. Lake Erie was closed by ice on the first; there was good sleighing the entire month. Amount of snow thus far, this winter, eighty-three inches.

Auburn, New York.—This has been the coldest January since 1857; there have been four weeks of good sleighing.

Oneida, New York.—Thirty-five inches of snow in January.

Greenwich, New Jersey.—Six inches of snow fell during the month; rained on the 23d.

Newark, New Jersey.—Ten and a half inches of snow during the month; rain on the 23d; flurries of snow on the 24th.

Mount Holly, New Jersey.—Eight inches of snow.

New Brunswick, New Jersey.—January 5, roads in good sleighing order; 19th, temperature at 7 a. m. 4° below zero; the coldest morning in four years; ground frozen about six inches.

Burlington, New Jersey.—January 2: Delaware river froze over last night; the second time this winter. January 31: The Delaware has been frozen over at least four times this winter, and teams can now cross on the ice to Bristol. Although the greatest depth of snow falling at one time has been but two inches, the snow has not disappeared at any time during the month; whole amount of snow seven and a half inches.

Passaic Valley, New Jersey.—Eleven and a half inches of snow fell during the month.

Progress, New Jersey.—Delaware river froze over the night of the 17th. Amount of snow during the month seven and three-fourths inches.

Moorestown, New Jersey.—Amount of snow during the month seven and a quarter inches.

Haddonfield, New Jersey.—Eight and a quarter inches of snow. The winter thus far has been more uniformly cold, and more snow has fallen and has remained longer on the ground than in the previous winter. The crop of wheat will promise better from the protection thus afforded.

Canonsburg, Pennsylvania.—Seventeen and a quarter inches of snow fell during the month; four inches on the 22d and 23d.

Harrisburg, Pennsylvania.—Amount of snow during the month, nine and a half inches; three inches on the 21st, and three inches on the 23d.

Fallsington, Pennsylvania.—January 4.—Delaware river closed the third time this winter. 10th, river broke up the third time. 18th, river closed the fourth time. Amount of snow during the month, eleven inches.

Gettysburg, Pennsylvania.—Fall of snow during the month, 4.18 inches.

Berwick, Pennsylvania.—Fall of snow, thirteen inches.

Philadelphia, Pennsylvania.—January 18: Schuylkill river closed with ice, and continued closed the remainder of the month. Amount of snow, nine inches.

Dyberry, Pennsylvania.—January 31: Streams are very low and well scaled with ice. The ground is frozen one and a half inch under fourteen inches depth of snow, which is much drifted on the hills. Amount of snow during the month, thirteen inches; four inches on the 23d.

Blairsville, Pennsylvania.—Eighteen inches of snow fell during the month.

Fleming, Pennsylvania.—Ten inches of snow fell during the month.

Cornelsville, Pennsylvania.—Twenty-four and a half inches of snow during the month; five inches on the 23d.

Horsham, Pennsylvania.—Seven inches of snow during the month. The month throughout has been unusually cold, with a great many snow-squalls; very little of the time that the ground has not been covered.

Tioga, Pennsylvania.—Twelve and a half inches of snow during the month; five inches of it on the 6th and 7th, and five inches on the 23d. Steady cold weather all the month; ground covered with snow; excellent sleighing; very favorable for lumbermen, and they are improving it by getting large stocks. Very favorable also for winter grain and clover. Under the snow the ground is not frozen more than four inches deep; ice in the river fourteen inches thick.

Wilmington, Delaware.—Eleven and a half inches of snow during the month; rain on the 23d.

St. Mary's City, Maryland.—Eight inches of snow in January; rain on the 22d.

Sykesville, Maryland.—January 23.—The trees and shrubbery bent down with sleet; rain and snow in the afternoon. 24th, best sleighing this winter; the ground was frozen hard when the sleet came, then the snow, and again rain and snow; all froze hard together. Six and three-quarter inches of snow during the month.

Annapolis, Maryland.—Three and a half inches of snow on the 3d, and nearly half an inch on the 6th; sprinkles of snow several times afterwards.

Hilton Head, South Carolina.—No snow during the month; rain on the 23d.

Beaufort, South Carolina.—No snow; two inches of rain on the 22d.

Natchez, Mississippi.—No snow; ice on the 1st; ice on the 24th half an inch thick.

Smithville, Kentucky.—Twenty-one inches of snow during the month; 3.8 inches on the 23d.

East Fairfield, Ohio.—Twenty-one inches of snow in January; three inches on the 23d.

Cincinnati, Ohio.—Sixteen and six-tenths inches of snow during the month; three and a third inches on the 23d.

Kingston, Ohio.—Amount of snow, 13.3 inches; snow on the 23d, amount not given.

Cleveland, Ohio.—Amount of snow, 13.1 inches; rain on the 22d.

College Hill, Ohio.—Amount of snow, twenty-six and a quarter inches; five inches on the 23d.

Portsmouth, Ohio.—January 4: Ice very heavy in the Ohio river. January 7, snow from 1 a. m. to 6 a. m., ten inches in five hours. This was the heaviest fall of snow ever known here in so short a space of time; had the ground been dry the snow would have been much deeper. 15th, some ice in the Ohio river. 18th, ice packed by our merchants six and a half to seven inches thick. 25th, navigation suspended on account of ice; fine skating. Fall of snow during the month, nineteen and three-quarter inches. The snow, on the 7th, was from eight

to twelve inches deep at a number of stations in Ohio; at Cleveland it was only an inch and a half.

New Lisbon, Ohio.—Twenty-four and a half inches of snow during the month; four inches on the 23d. January 31, although the weather has been very cold, the ground is frozen but slightly, in consequence of the heavy snow covering it.

Hillsboro', Ohio.—There was good sleighing the whole month of January, but the snow is melting to-day, February 1.

Kelley's Island, Ohio.—January 18.—Channel frozen entirely over; mail crossed wholly on the ice. 24th, channel again open through the middle; west wind has blown the ice down the lake. Amount of snow during the month, nine inches. The mean temperature of the month was 4.89 degrees below the mean of January for the last five years.

Westerville, Ohio.—Amount of snow during the month, eighteen inches; five inches on the 23d. There has been more and better sleighing this winter than has been known in Ohio for many years; perhaps not more in quantity, but it remained longer.

Urbana, Ohio.—The first four days of the month the ground was covered with snow; the 5th there was none on the ground; snow fell again on the 6th, and the ground is still covered at the end of the month; the sleighing has been good for three weeks. Amount of snow during the month, ten inches and seven-tenths; three inches on the 23d.

Bethel, Ohio.—Amount of snow, nineteen inches.

Saybrook, Ohio.—Some snow has fallen on perhaps half the days of the month, including some of the coldest. Amount of measure during the month, seventeen inches.

Welshfield, Ohio.—Twenty-eight inches of snow during the month; an inch and a half on the 23d.

Wooster, Ohio.—Eleven and one-sixteenth inches of snow during the month.

Smithville, Ohio.—Fifteen and a quarter inches of snow during the month; two and a half inches on the 23d.

Milnersville, Ohio.—Fifteen and a half inches of snow during the month.

Ripley, Ohio.—Seventeen and three tenths inches of snow during the month; two and a half inches on the 23d.

Stuebenville, Ohio.—Snow fell on twenty-six days in small quantities; amount not given. The ground, at the end of the month, is covered, and sleighing more and better than for several years.

Monroe, Michigan.—Nine inches of snow during the month; four inches of it the 9th and 10th, and five inches on the 26th and 27th.

Lansing, Michigan.—Six and a half inches of snow during the month.

New Albany, Indiana.—Fifteen inches of snow during the month; eight inches on the 6th and 7th, three on the 10th, one on the 19th, and three on the 22d and 23d.

Madison, Indiana.—The month has been unusually cold, with more snow than has been known for several years past. The ground was somewhat frozen before the snow fell. Sleighing has been good for two or three weeks. Amount of snow during the month, twenty-two inches.

Newcastle, Indiana.—Ten inches of snow during the month.

New Harmony, Indiana.—The maximum temperature for January was 48°, the lowest maximum during twelve years, except in 1856, when it was the same; the highest maximum was 67°, in 1864. The minimum temperature of the month was 1°; in 1864 it was 15° below zero; the highest minimum during twelve years was 22°, in 1858. The range of temperature for the month was 47°; in 1864 it was 82°. The least range during twelve years was 37°, in 1858. The mean temperature for the month was 28.24°; the lowest mean during twelve years was 20.4°, in 1857; the highest, 40.6°, in 1861.

Rensselaer, Indiana.—The month of January has been dry, and rather cold, but remarkably free from the sudden changes of temperature so common in this climate, and especially on the broad, elevated prairies of northern Illinois and Indiana. Amount of snow during the month, 5.65 inches.

Vevay, Indiana.—The large amount of snow (eighteen inches) which fell from 10 p. m. of the 7th to 5 a. m. of the 8th, created a heavy rise in the Ohio river, threatening an overflow at this place and various points below, which, however, was checked by the continuous cold weather which set in. The accumulation of ice in the river is very great, endangering navigation, which was entirely suspended during the last week of the month. The amount of snow fallen at this point in January was not less than thirty-five inches.

South Bend, Indiana.—Fall of snow during the month, fifteen and three-quarters inches.

Bloomington, Indiana.—Eight inches of snow during the month.

Indianapolis, Indiana.—Amount of snow during the month, 17.8 inches.

Springfield, Illinois.—Amount of snow recorded, 4½ inches; several snows are entered on the register, but no depth given; probably small.

Ottawa, Illinois.—Four and a half inches of snow during the month.

Tiskilwa, Illinois.—Two and a half inches of snow during the month; one inch of it on the 16th, an inch and a half of it on the night of the 21st. Snowed for a few minutes at 7 p. m. of the 8th.

Waverly, Illinois.—January has been the most remarkable of any winter month for a period of twenty-five years, for the uniform range of temperature—cold and dry, without rain or snow. On the 1st of the month the depth to which the ground was frozen was eleven inches, which gradually increased in depth until the end of the month, when it measured eighteen inches. The streams of water are all frozen, and the public roads are as solid and smooth as a railroad. Two inches of snow fell on the night of the 8th; no other rain or snow is recorded during the month.

Elmore, Illinois.—An inch and three-quarters of snow during the month.

Sandwich, Illinois.—January has been the dryest month since my recollection, no rain falling, and only two and a half inches of snow—an inch on the 15–16th, and an inch and a half on the 22d; a slight amount also fell in the night of the 8th, not measured. There has been no freezing and thawing, and hence winter wheat is thus far but little injured. Abating the cold week near the end of the month, January has been rather milder than the average for a number of years.

Riley, Illinois.—Half an inch of snow on the 16th, and six inches on the 22d.

Wyanet, Illinois.—A sixteenth of an inch of snow on the 3d, an inch on the 16th, and an inch and a half on the 22d.

Hoyleton, Illinois.—Four inches of snow on the 6th, and one inch on the 9–10th.

Chicago, Illinois.—Snow on the 8th, 22d, and 23d.

Clinton, Illinois.—Two and a half inches of snow on the 9th, and one and a half inch on the 17th.

Augusta, Illinois.—A quarter of an inch of snow in the night of the 8th, three-quarters of an inch on the 16th and 17th, and three-quarters in the night of the 21st.

Winnebago, Illinois.—Two inches and six-tenths of snow, an inch and a half of it on the 22d. Winter, thus far, (January 31,) dry, and fine for stock.

Elmira, Illinois.—One inch of snow on the 17th, and two inches on the 21st.

Galesburg, Illinois.—Two inches of snow on the 16th, and one inch on the 21st. The water is low in cisterns and wells.

Peoria, Illinois.—Light snow on the 8th, 16th, and 21st.

Manchester, Illinois.—Three inches of snow on the 21st and 22d.

Hennepin, Illinois.—Though the weather has been variable in January, the changes were not sudden nor extremes great. No storms and less severity of wind than usual. Comparative steadiness and low temperature of weather has rendered stock water scarce in many neighborhoods. The present thaw (February 3) will give them plenty of water.

Allenton, Missouri.—Five and one-eighth inches of snow during the month; four and a half inches of it on the 9th and 10th.

Athens, Missouri.—January has been cold and dry; no rain, and only an inch of snow—three-quarters of an inch on the 16th and 17th, and a quarter of an inch on the 22d. There has been great trouble to get water for stock. The ice on the Des Moines river, above the dams, is fourteen inches thick, very hard and pure; the best winter for putting up ice for twenty years.

Canton, Missouri.—One inch and thirty-five-hundredths of snow during the month—a fourth of an inch on the 8th; a tenth on the 16th, and an inch on the 21st.

Easton, Missouri.—One inch of snow on the 8th, and an inch and seven-tenths on the 21st.

Harrisonville, Missouri.—Two and a half inches of snow on the 8th, and two inches on the 21st.

Bloomfield, Wisconsin.—Three inches of snow on the 22d; no other recorded during the month. January 31, temperature of water in well forty feet deep, 45°; temperature of air, 34°. This is lower than for the two years preceding, when it was 48° and 49°. The ice in Geneva lake is from twenty-one inches to two feet thick; last year the ice was fourteen inches.

Baraboo, Wisconsin.—Half an inch of snow on the 4th, quarter of an inch on the 20th, and four inches on the 22d.

Embarrass, Wisconsin.—One inch of snow on the 4th; half an inch on the 14th and 15th; eight inches from the 19th to the 22d, and half an inch in the night of the 26th—ten inches in all.

Waupaca, Wisconsin.—Five inches of snow from the 19th to the 21st; no other recorded.

Green Bay, Wisconsin.—Six inches of snow during the month, distributed nearly equally on the 4th, 13th, 19th, 21st, 22d, and 30th.

New Holstein, Wisconsin.—A few flakes of snow on the 15th, 16th, and 20th, and five inches on the 21st and 22d.

Plymouth, Wisconsin.—A few flakes of snow on the 14th, 15th, 16th, and 19th, and four inches on the 21st and 22d. Depth of ground frozen on the 31st about two feet eight inches; where the ground is covered with about ten inches of snow it is frozen only a few inches.

Delavan, Wisconsin.—Six-hundredths of an inch of snow on the 16th, and three and six-tenths inches on the 21st and 22d. A few flakes on several other days.

Manitowoc, Wisconsin.—Amount of snow during the month 3.87 inches.

Milwaukee, Wisconsin.—A quarter of an inch of snow on the 10th, and two and a half inches on the 21st and 22d.

Saint Paul, Minnesota.—Six and a quarter inches of snow fell during the month, five inches of it on the 19th and 20th.

New Ulm, Minnesota.—One inch of snow on the 16th, one on the 18th, and two on the 20th.

Minneapolis, Minnesota.—Seven and a half inches of snow on the 19th and 20th; a little on three other days, not measured.

Clarinda, Iowa.—Three inches of snow during the month; one inch on the 16th and 17th, and two inches on the 21st.

Algona, Iowa.—Six inches of snow on the 20th; no other during the month except a few flakes on the 13th and 16th.

Lyons, Iowa.—Slight snow for half an hour on the 4th, an inch on the 15th, and three inches on the 22d. Ice on the river sixteen inches thick.

Independence, Iowa.—Four-tenths of an inch of snow on the 2d, one inch on the 16th, and an inch and a half on the 22d.

Monticello, Iowa.—Half an inch of snow on the 16th, two inches and four-tenths on the 22d. January 16: Temperature of springs 48° , which is three degrees lower than in August last; temperature of wells average, as far as examined, 44° , which is from four to six degrees lower than in August last.

Iowa City, Iowa.—Snow on the 3d, 16th, and 22d, in all 3.15 inches; two inches of it on the 22d.

Dubuque, Iowa.—Amount of snow during the month 2.26 inches, one inch of it on the 16th and one inch on the 22d. The snow-storm of to-day (the 22d) from the northwest is of unusual occurrence. Such storms almost always come from an easterly or southerly direction.

Muscatine, Iowa.—Six inches of snow during the month; one inch on the 2d, one on the 8th, two on the 15th, and two on the 22d.

Guttenberg, Iowa.—One-tenth of an inch of snow on the 8th, seven-tenths on the 16th, and one-tenth on the 20th.

Olatha, Kansas.—One inch and three-quarters of snow on the 8th, and a quarter of an inch on the 21st.

Manhattan Kansas.—Three inches of snow on the 21st, and a very little at noon on the 8th.

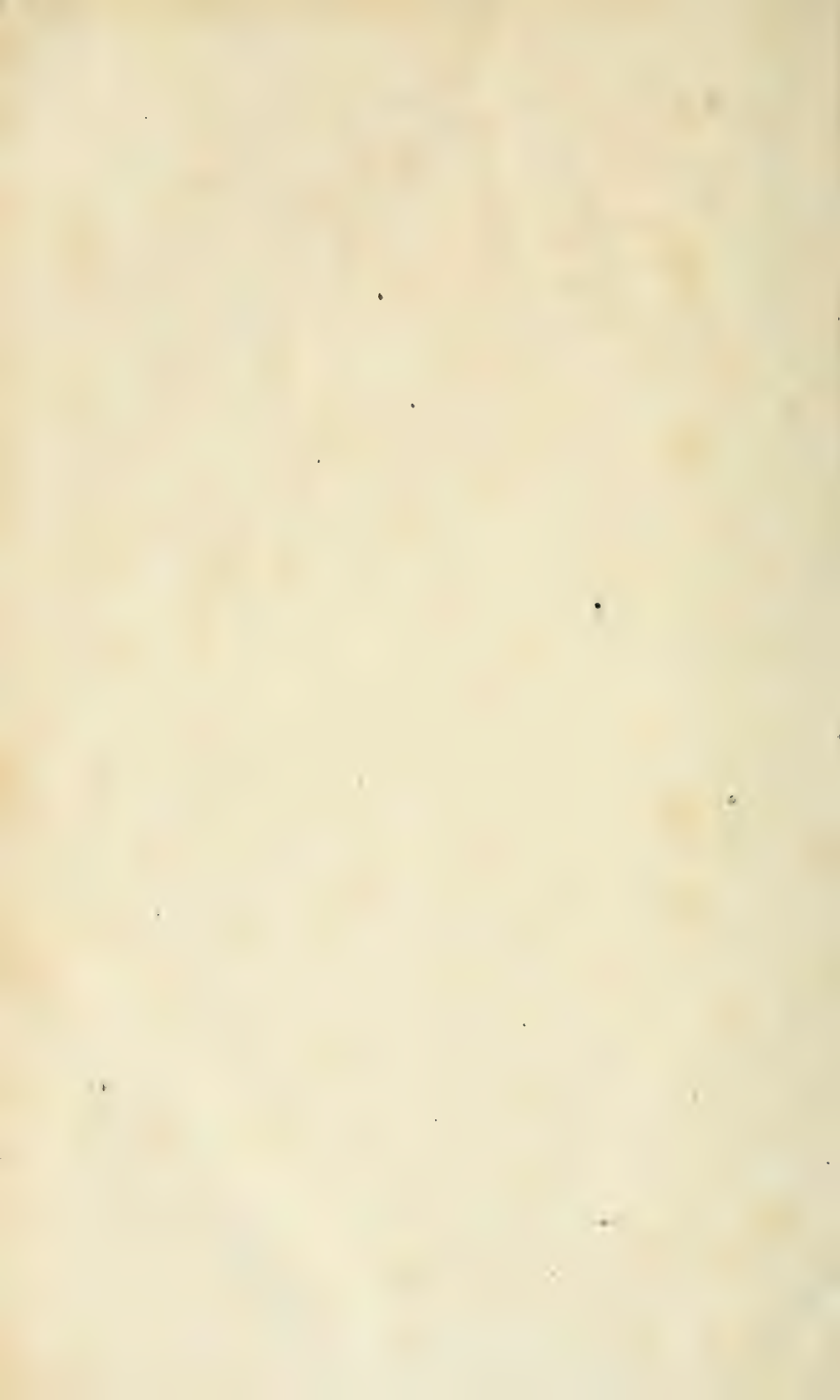
Bellerue, Nebraska.—Half an inch of snow on the 17th, and two inches on the 20th.

Nursery Hill, Nebraska.—One inch of snow on the 20th, and two inches on the 21st. Ground frozen twenty and a half inches deep on the 2d day of January.

METEOR.

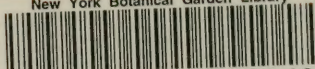
A very large and brilliant meteor was seen from different towns in Minnesota on the morning of the 27th of January.

NOTE.—The late disastrous fire at the Smithsonian Institution will not interrupt the active operations of the establishment. Though most of the meteorological records were preserved, a number of sheets are wanting, which it is hoped the observers may be able to supply hereafter, when a list of deficiencies can be made out. All the *blank* registers were lost, but a new supply will soon be obtained, and correspondents will be furnished with them.





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